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ADDRESS

BASIC SUGGESTIONS TO THE OREGON PROFESSION *

A. M. Webster, M.D.
PORTLAND, ORE.

The Oregon State Medical Society is the central organization of the medical profession of the State of Oregon. The constitution sets forth among the objects of the organization "the enlightenment of public opinion in regard to the great problems of medicine so that the profession shall maintain high and honorable standards within itself and be useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life." This organization is an integral part of the greatest medical organization in the world, The American Medical Association.

While our society is autonomous and we govern our own matters in Oregon, we look to the national organization for help and advice in all matters that are of interest to the profession at large. The loose thinkers who are always ready to cast some slur on the A. M. A. make a pitiful display of their own ignorance in so doing. We should be, and we are, proud of our national organization and its record of accomplishment.

Physicians are not only devoting their time to the application of remedial measures, such as have been proven and found good by scientific research and extensive tests, but every physician essentially is a teacher, and a paradoxical situation exists in this connection. He is always teaching people how to live in such a way as not only to overcome or cure the present ailment but to keep themselves in such condition that they will not need a doctor.

In any other calling but ours it would be rank foolishness to do as we do. The lawyer fattens on promoting litigation and making it difficult, the preacher sees his economic welfare made more secure by winning many new converts, the teacher increases demand for teachers by cultivating a desire for knowledge, but it is unthinkable that a doctor should go about spreading epidemics in order that there may be more demand for doctors to treat the sick. In most instances the physicians themselves are the health authorities who are working to check epidemics and prevent their spread. They are the ones who are teaching people how to keep well. Laws that will protect the public health are always favored by the medical profession and measures that are inimical to public health and welfare are earnestly and vigorously opposed.

Without the cooperation of laymen we would be helpless in promoting good measures and defeating bad ones, and, therefore, it is essential that we carry on a constant campaign of education to the end that public opinion may be enlightened. Another very important object of our organization is the promotion of friendly intercourse among physicians and the guarding and fostering of their material interests.

An organization of the physicians of a community is in some measure similar to that of retail

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* President's Address, read before the Sixty-first Annual Meeting of Oregon State Medical Society, Gearhart, Wash., Sept. 19-21, 1935.

merchants, i.e., it is an organization of competitors, and the smaller the community covered by such an organization the more pronounced is the competitive feature. Obviously such a group does not possess the solidarity and cohesiveness that often characterizes a group made up of those who are not competing with each other. It is very difficult for a physician to be friendly with another one whom he regards as unfair in his attitude towards his competitors. Doubtless, always there will be a few such men who are self-centered and non-cooperative and even unscrupulous.

Consequently, there are certain difficulties in securing united action by local groups of physicians. However, there is marked improvement noted, and the spirit of good sportsmanship and fair play is growing. The larger communities have less consciousness of this problem. The state society, less affected by the competitive spirit, is in a position to meet and settle problems as they arise and advise the local groups accordingly. There always will be local problems that must be settled by local groups and there is no disposition to dictate on the part of the state society in strictly local matters.

Sometimes local groups get over-enthusiastic over matters that should be handled by the state society. Greater care should be exercised along this line, as often the end desired is defeated by hasty local action and the state society is greatly handicapped in handling a difficult state-wide situation.

The State Medical Society would disregard one of its stated objects, if it did not give a due amount of time and attention to fostering the material interests of its members. While the predominating urge of medical practice is altruistic, we cannot escape the fact that we live in conditions that make a liberal income an essential of a successful practitioner. That may seem a statement in reverse English to those who consider success as measured by income alone. That is, of course, a very narrow idea of what constitutes success in the practice of medicine and therein lies one of the distinctions between our profession and other callings.

It would be quite ideal if we could devote ourselves to the intensive practice of medicine without having to give a thought to financial matters. There is something savoring of incompatibility between scientific pursuits and the acquisition .of money. Only a few have the versatility which combines financial acumen with the scientific practice of medicine. The solving of problems of diagnosis and treatment is so absorbing and so exhausting that other problems are pushed aside. This is one reason why doctors are often classed as poor business men and figure numerously on the sucker lists of the promoters of every conceivable scheme for separating the unwary from his money.

But there is another reason for an unfavorable financial situation among us that has been inherited by us. Long ago, long before there was any such thing as scientific medicine, it was customary for the doctor to accept any fee that the patient chose to offer. The poor paid nothing, many of the well-to-do did likewise, a few were honorable and enabled the doctors to live and transmit what learning they had to their colleagues and successors.

It is only within the space of one generation that a radical change in this plan has appeared. Many doctors can remember when it was considered unethical to send a bill for services rendered. The mercenary attitude that prevails in this present age, the vast increase in the number of those who expect and demand that everything be given to them, has brought upon the medical profession a staggering load.

Medical service is expensive. The day of horse transportation and saddle bag equipment for the doctor is gone forever. Yes, medical service is expensive, and is destined to be more so, and what may be a surprise to the general public is the fact that in rendering medical service the doctor pays the major fraction of the bill.

The medical care of the indigent has assumed proportions that were never dreamed of a few years ago. In prosperous times every doctor had his charity list and took care of these people without publicity, for then even the poor had self-respect and pride and did not take kindly to the idea of being publicly known as paupers. But since times have changed and approximately one-sixth of our population has been reduced to indigency, we have the amazing spectacle of the public officials who have the matter in charge making no provision for paying physicians even so much as the actual cost to them for taking care of the indigent. The medical care of the indigent is a legitimate charge against the tax funds of the county, and should be provided for in the budget. Physicians are under no obligation to carry the whole of the burden, but only their part as taxpayers. It is manifestly unfair for officials to make any other arrangement.

I have said above that medical service is destined to be more expensive. The cost of maintaining an office and employing assistants has been steadily increasing during the present century. Various schemes for reducing the expense of medical service have failed. People demand and should have available the most up-to-date, worthwhile equipment for diagnosis and treatment of disease. The increase in indigency throws the burden of supporting modern medical practice on a decreasing number of pay patients. Simple arithmetical computation brings the result that larger fees must be charged the pay patients or the physician paid for the vast amount of what is now free service, or the standard of living of the physician must be reduced to that of his low income patients.

Here lies a social peril. No matter how fine the idea may seem that a young man chooses to study to acquire knowledge and training over a long period of years compared with the average span of adult life, in order that he may relieve suffering and be a ministering angel to the sick, nevertheless, the cold conclusion is inevitable that, if he can visualize no alluring prospect of financial reward commensurate with the lengthy and expensive preparation for his work and the necessary overhead of its operation, he is very apt to lose the vision of laudable, unselfish service and use his ability in fields where he may be assured an income in keeping with his education and skill. The practice of medicine has ceased to be an attractive field for able and ambitious young men.

I am quite sure our thoughtful American public is not ready to turn over its medical and health problems to mediocre minds. We need the highest type of intelligence in recruits that we may not be ashamed of them, and in order to perpetuate the high standards already established, physicians must be liberally rewarded instead of being reduced to an unattractive standard of living.

The Oregon State Medical Society carries on its work in a very well organized way. The committees work under the direction of the President and the Executive Committee. The arrangement is very satisfactory. Any physician who has anything on his chest can easily get an opportunity to present the matter to the Executive Committee or the Council. We have a smoothly working machine of entirely benevolent character. No person outside or inside who has good motives has any reason to fear this organization or oppose it.

This society should be supported by every physician licensed to practice in Oregon. It is the only group authorized to speak for the medical profession. It stands between the physician and the predatory interests that would debase him to a mere hireling if they could. It is the lone physician's advocate in guarding his interests, his counselor in trouble, his bulwark of defense under attack. The physician who does not support the State Medical Society by paying his dues is thumbing a free ride. If there were no State Medical Society, the necessity for organizing one would appear immediately.

The usual course of matters that come up for decision, if not urgent, is for the Executive Committee to investigate, make a recommendation to the Council and it makes the final decision; when the matter is not urgent it may be referred to the House of Delegates.

We have entered upon this convention with the largest membership in the sixty-one years of the life of the Society. This happy condition is not a mere accident, but the result of intelligent and persistent effort to make this organization an essential to every physician in our State. There is an evidence of solidarity in this that augurs well for the progress of scientific medicine in Oregon. The consciousness of the power of numbers gives confidence to those who are entrusted with leadership and makes for notable progress in the many lines that are important to our profession and that intimately affect our success and prosperity.

We form a group that is very important to the general public as we are pledged to so conduct our activities as to promote the public health and general welfare. An altruistic group such as ours is unique in the social organization known as the State. We have shown this rather dramatically during the past year by entering politics and bringing about the defeat of the initiative measure which was calculated to debase the standards of medical practice and withdraw from the public the protection against ignorant quacks which is one of the most precious safeguards afforded the unwary.

In waging this fight against the unscrupulous proposals of the quacks, our profession attained a solidarity heretofore unknown to it in this State, and we became conscious of political power which we wielded to the advantage of the general public and which we propose to use in the future to advance the cause of scientific medicine, public health and public welfare. Drs. Best, Hosch and Hockett, members of the legislature, cooperated perfectly with the State Medical Society and did much to accomplish quietly the good work whose value is but faintly appreciated by people in general.

Even the rank and file of our own Society have hardly realized the extent of the activities of our organization. Not only the public but the profession has benefited by them. Never in the history of this Society has it been so well organized and so full of the determination to accomplish lasting good. Incidental to the battle against the quack bill, a campaign of education was carried on and much interest aroused in the ideals and purposes of the medical profession.

I would be remiss indeed if I did not mention here the splendid and effective work of the Woman's Auxiliary. These loyal women laid aside their usual duties and canceled social engagements to devote themselves whole-heartedly and without stint to the task of informing the public about the dangers of the proposed bill and in spreading sound ideas as to the practice of medicine, the training of physicians, their purposes and ideals. I watched the work of these splendid women and am convinced that they were a very important factor in bringing about the sweeping victory for scientific medicine.

I believe the time is ripe for the establishment of a program of education of the general public under the auspices of the State Medical Society. There are indications that such a program would be welcomed by the more intelligent part of our population and lay support for it can be obtained to a large extent. Certain half-baked proposals can be met successfully by such a program and the adoption of hostile legislation prevented. It is only necessary to explain the character of our policies and purposes to win the support of fair minded people.

The Woman's Auxiliary has before it an unlimited field of cooperation with the committee of our Society having charge of public education. I believe we should be very aggressive in this field for it is evident that the general public has a very limited knowledge of the purposes and ideals of medical organizations; in fact, not merely very limited knowledge, but is well supplied with a lot of misinformation which forms the basis for unfriendly comment, not only by irresponsible loose thinkers, some of whom edit newspapers, but by many others who are well informed on most topics of human interest.

RECOMMENDATIONS

In facing the future, I wish to say most emphatically that I plead for a general acceptance of the broad view and the long look ahead, forgetting for the time being the minor things that clutter up our mental processes and produce an incorrect evaluation of medicosocial relations.

It is perfectly obvious, I think, that the orderly aggrandizement of our legitimate influence in shaping public opinion in all matters that interlock with the ethical practice of medicine depends on a strong, wise and aggressive State Medical Society. We already have a very comprehensive, mobile, and efficient set-up, under the present Constitution and By-Laws. The organization is democratic enough so that it is responsive to the majority opinions of its constituent societies or large groups of individuals, and it is autocratic enough to swiftly decide important questions and put the decisions into effect.

The power and efficiency of the organization depends on the character and personality of the officers and members of the Council and the loyalty of its members. The members, through the Constitution and By-Laws, have assigned the officers and Councilors certain definite duties and have laid upon them the responsibility of representing the membership in public relations. Having delegated these powers, it is in order to loyally support the Council and officers in the programs and policies they have approved.

All medical progress in our State is dependent on wise and carefully considered action by our governing body, the Council. All medical programs, involving the relations between the medical profession and lay groups or the general public, are the legitimate concern of the Council and officers.

Any individual or group acting independently of the Council and its duly appointed representatives, in conference with lay groups in determining programs and plans that involve the welfare of the medical profession, is disloyal to the organization of which he is a member and should be disciplined or excluded from the fellowship of the society. It is fundamental that any society must protect itself from unauthorized actions that mislead the laity as to who the responsible and duly authorized spokesmen of the medical organization may be. A contrary conception of the relation of the individual member to the society makes for dissension, bitter denunciations and a complete paraplegia of the organization.

While I admire independent thinking and find my own mental processes stimulated by listening to opinions in frank opposition to my own, I am convinced that a man who insists on checkmating and circumventing the matured and well considered policies of the medical organization is a menace to the organization, which is of far more importance to the public and ourselves than any one man or self-seeking group. To state this fundamental thing more bluntly, every member should be a good sportsman and play the game according to the rules, not seeking the aggrandizement of himself and not forgetting the interests of others.

This organization is your organization. It belongs to all of you. Ultimately anything that is done to cripple its activities will cripple us individually. If you don't agree with the policies adopted and pursued, the place for utterance of your protests is the meeting of the Council, where you will be given a courteous hearing and where you may be assured a decision will be forthcoming that is based on the merits of your proposition.

If you have in mind a plan of action on any subject that we should consider, bring it before the Executive Committee or the Council. You all know where the office of the executive secretary is located, and he will give you information as to meetings of the Executive Committee and the Council.

Presidents come and presidents go. They do not determine the continuing policies of the Society. They are of importance in this way. A good executive selects men who put the programs over through committee activity. A poor executive just rides along and the work lags until he is supplanted by his successor.

The office of President should be cherished as a high honor and should be conferred only on those who have been proven true to our ideals and who have earned this recognition. I am convinced that no man should seek this position.

We as an organization mind our own business. The individual members should do likewise and leave to the Society the handling of matters properly belonging to it. Solidarity is the sine qua non of success. Let's be good sports. Play the game according to the rules and present a united front.

Thanking you for your patient attention and thanking most earnestly all those who have cooperated with me in my earnest efforts to be of some value to the profession which I love, my swan song is ended with the only command I have ever given you. Carry on, fellows! Carry on!

Outbreak of Undulant Fever Due to Brucella Suis. Benjamin G. Hornig, Hartford, Conn. (*Journal A. M. A.*, Dec. 14, 1935), speaks of an outbreak of undulant fever with fourteen cases and three deaths that occurred in a home for elderly persons. Raw milk from the institution herd was the only source of infection found. The herd consisted of thirty-six cows and one bull. The blood from two cows was positive and from another suggestive for brucella infection. Brucella suis was isolated from the blood of two patients and from an abscess of a third patient. Blood was drawn from thirty-two swine kept by the institution. Nine were positive and seven suggestive for brucella infection. The cattle had opportunity for natural infection from the swine. Epidemiologic evidence suggests that the outbreak was due to Brucella suis received from drinking raw milk from cows infected with brucella suis from swine.

THE SURGICAL MANAGEMENT OF PEPTIC ULCER*

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Before approaching the topic of the surgical management of peptic ulcer I should like to voice my opinion relative to the disease as an entity. A study of peptic ulcer as it exists in man and as produced in the experimental animal convinces me that the ulcer is a localized manifestation of a disease, the ulcer being only one of the symptoms. If such be the case, it becomes obvious that any treatment directed exclusively toward cure of the ulcer will not be scientifically correct and should not yield a high degree of curative results. It is true that the excision of the greater part of the stomach and the first part of the duodenum removes the ulcer bearing part of the gastrointestinal tract and ulcers can no longer appear in these locations.

The question remains to be answered whether these patients are well after such extensive resections. My own experience indicates that, even when we exclude those cases which develop new ulcers such as gastrojejunal, a considerable percentage of the patients are not cured of a disease which continues to cripple them. Many of these patients fail to gain in weight and strength, are subjected to attacks of gastrointestinal distress and intercurrent infections and must lead restricted lives. Just how much of the symptomatology is due to the loss of anatomic parts which disturbs normal physiology and how much to the disease itself remains a problem to me.

When the ulcer patient is studied, one is impressed with the fact that there is a distinct ulcer status. The patient gives evidence of disturbances in gastrointestinal physiology long before characteristic ulcer symptoms appear. These symptoms are associated with mental stress and anxiety, high tension living and an unusual drive so adequately described by Crile. I do not wish to convey the impression that I am in accord with all the theories of Crile relative to the etiology or nature of peptic ulcer, but after a close study of many ulcer patients I am convinced that his description of a status found in the ulcer patient is correct. Time will not permit a discussion of this interesting phase of the problem since it falls within the realm of the internist. However, the surgeon must take cognizance of it, if he wishes to treat an ulcer patient intelligently.

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* Read before the Forty-third Annual Meeting of Idaho State Medical Association, Boise, Ida., Sept. 9-13, 1935.

If it is granted that peptic ulcer is a disease, only one of its manifestations being the ulcer, it becomes apparent that the treatment does not consist solely of removing the ulcer or the ulcer-bearing area. The true nature of the disease is not known today. I have repeatedly stated that in my opinion it simulates a deficiency state. This is borne out by the experimental work of McCarrison in his studies on nutrition of the albino rat. He was able to produce gastrointestinal ulcerations with great regularity by subjecting his experimental animals to a deficiency diet. It remains to be proven what association there may be between a possible deficiency state and the one peculiar factor in the human, i.e., the anxiety state, due to a great extent to the modes of present day living.

Infection along with other factors seems to be an important element in the etiology of peptic ulcer. So frequently in the young individual there can be elicited a history of repeated attacks of appendicitis. In due course of time the nature of the attacks changes, the patient complains of distress in the epigastrium associated with the intake of food and a typical ulcer history then ensues. Gallbladder disease is often associated with or complicated by ulcer and acute ulcerations of the duodenum frequently follow in the wake of common duct obstruction. It has been shown that many of the profuse gastrointestinal hemorrhages occurring in the presence of an obstructive jaundice are caused by acute duodenal ulcerations. Blanck has proven experimentally that these secondary ulcers, following the exclusion of bile from the intestinal tract, can be prevented by the introduction of bile into the stomach. This again suggests that a deficiency state may be concerned in the etiology of peptic ulcer.

The association of cigaret smoking to ulcer symptoms, if not to ulcer pathology, is interesting. On the day of this writing, in interviewing a patient with duodenal ulcer with moderate duodenal obstruction, I was informed that several years ago, while under medical management having remissions with dietary and alkali treatment, he stopped smoking for two years. During this time he ate practically all types of food and took no medication of any sort and was completely free of ulcer distress. He began smoking again and within a brief period of time ulcer distress recurred. He stopped smoking the second time and again the ulcer distress disappeared during the time of abstinence from cigarets. The distress reappeared with smoking again. The third time he stopped smoking the ulcer pains did not subside and he entered the hospital displaying obstructive symptoms. Just what the association of cigaret smoking to ulcer is is a question. However, I am impressed with the fact that smoking has a tendency to precipitate acute exacerbations of symptoms and I make it a rule to warn patients who have been operated upon for ulcer to refrain from cigaret smoking.

Peptic ulcer is primarily a medical disease and no case should be operated upon until every resource at the hand of the internist has been exhausted. There is one exception—perforation. I am convinced that the internist can cure far more cases than the surgeon, providing he applies himself to the task and considers other elements of the disease besides the ulcer. So frequently the surgeon is confronted by the proposition that the patient cannot afford the time and restrictions necessary for a medical regime, therefore should be operated upon as a short cut. I am sure that, if the cure of ulcer by surgery were as simple as this insinuation implies, most ulcer patients would seek surgical rather than medical aid. Surgery should never be substituted for medical treatment. I now refer to uncomplicated peptic ulcer. When organic obstruction is present, the degree of the obstruction will become the criterion as to when surgical aid must be sought. Most gastroenterologists agree that "once an ulcer patient always an ulcer patient," which implies that those individuals who have peptic ulcers must continue to live reasonable lives and restrict themselves both dietetically and emotionally. I am convinced that the same axiom applies equally well to the patient who has been operated upon, if the best results are to be obtained. Emery and Monroe state that these restrictions may prove a blessing in disguise, since they force the patient to live within his physical capacity from early middle age onward.

In spite of adequate medical treatment, but in most instances because of inadequate medical treatment, certain types of peptic ulcer, with a well established chronicity, must be considered from the viewpoint of surgical interference. These cases may be grouped as follows:

Duodenal. (1) Recurrent or unyielding ulcers in spite of adequate medical treatment. These should be further divided into two groups: those with a fairly normal acid curve and motility and those with a high acid curve with hypermotility in the majority of instances found in the neurotic or emotional individual. (2) Cases with repeated hemorrhages. (3) Cases with obstruction. (4) Cases of a progressive nature in spite of medical management often associated with excessive pain, vomiting and bleeding. Alkalosis is often present or impending. (5) Cases with perforation.

Gastric. (1) Cases with perforation into the liver or pancreas. (2) Large or chronic ulcers which suggest malignancy. (3) Hour-glass contraction. (4) Cases of a progressive nature associated with excessive pain, vomiting and bleeding. Alkalosis often present or impending. (5) Perforation. (6) Cases of repeated hemorrhages.

An allusion has been made earlier in this paper to infection as a possible etiologic factor in ulcer. It is our opinion that, when surgery is instituted, one phase should be to eliminate all foci of infection. This may be a preliminary procedure without any actual attack made upon the ulcer or the ulcer-bearing portion of the gastrointestinal tract. Infected tonsils should be removed, oral sepsis corrected, an infected appendix or gallbladder removed, attention to sinus infection; in fact, an especial survey should be made so as to remove all foci of infection. This is an important phase of the surgical management and may be more beneficial than a superficial review might indicate. It has become our custom to remove an infected gallbladder and the appendix when an operation is performed for peptic ulcer, the only contraindication being the poor surgical risk.

From the surgical point of view the duodenal ulcer presents different problems from the gastric. Hyperacidity is rare in chronic gastric ulcer, while in duodenal ulcer it is common. In duodenal ulcer a malignant process need cause little apprehension. Perforation into the free peritoneal cavity is rare in gastric ulcer, while it is relatively common in duodenal. Duodenal ulcers are prone to develop acute exacerbations associated with hemorrhage and stasis. As an example, several years ago I operated upon a man who had had a gastroenterostomy performed several years previously for a duodenal ulcer. All the classic symptoms of a gastrojejunal ulcer were present. At operation I disconnected the jejunum from the stomach, resected the jejunal ulcer and closed the stomach opening. An examination of the duodenum revealed no evidence of an ulcer; the walls were thin and pliable and no adhesions were present. Because of the time consumed in removing the jejunal ulcer and because of the normal duodenum, no further work was considered advisable. Seven days postoperatively, the patient developed epigastric distress which was followed in less than twenty-four hours by acute pain and a profuse hemorrhage. He died before a blood transfusion could be given. At autopsy an enormous mass involving the duodenum was found. This mass was adherent to the liver and pancreas and upon section the pancreaticduodenal artery was found open in the floor of the ulcer. This exemplifies the rapidity with which acute catastrophies may develop in the patient suffering from duodenal ulcer.

SURGICAL PROCEDURE

In surgical management of duodenal ulcer, the procedure applied must be selected as best fitted to the individual case. This process of selection begins before the patient is operated upon. It depends upon the age, the emotional status, the degree of acidity and secretion, the amount of obstruction and the general response of the individual to his environment. In type 1 of duodenal ulcer, in the individual with a fairly normal acidity and without any degree of obstruction, surgery is rarely indicated. However, the exceptional case may demand operative interference. If the ulcer is not adherent to the pancreas, an excision with a wide pyloroplasty yields good results. The posterior ulcer may be eradicated by excision or by cautery. Many surgeons prefer doing a posterior gastroenterostomy, since that cure is relatively high and the incidence of a jejunal ulcer is not over three to five per cent. It appears that in this type of case there is little perversion of the gastric physiology and with adequate postoperative management they remain in a satisfactory state of health.

On the other hand, in the case with hyperacidity and hypermotility in the emotional individual gastroenterostomy should not be done, since the incidence of jejunal ulcer is high. Excision with pyloroplasty yields slightly better results than gastroenterostomy but persistence of symptoms is common. In my opinion a high subtotal gastric resection is today the operation of choice. The Polya type of resection is the one indicated. It should be stressed that the resection be high, since if too much of the stomach is allowed to remain, marginal or jejunal ulcer may occur and their treatment will be more difficult than those that follow a gastroenterostomy.

Duodenal ulcers with *repeated hemorrhages* are often a problem. In my mind the acute hemorrhage should always be treated medically for I am convinced that the mortality with correct medical treatment will be practically nil. It is our habit to withdraw all intake by mouth and give frequent blood transfusions. Transfusion has been objected to by some on the theory that it increases the intravascular volume and blood pressure, thus favoring the continuance of bleeding. The amounts of blood should be small, 50 to 100 cc. given daily or oftener for several days. Such a procedure adds much needed blood gradually and introduces some substance which facilitates the hemostatic properties of the blood. It is entirely possible that the introduction of 500 or 1000 cc. of blood during a short period of time may defeat the purpose of the transfusion.

In my own experience or that of my immediate associates, I have seen no case which has not responded to this type of management. One case was brought to my attention in which the transfusion was not carried out as described; the patient was operated upon and there was found an open spurting vessel in the floor of the ulcer. I recall another case in which bleeding did not subside for more than a period of a number of hours following fractional transfusions. In this case a hurried resection of the ulcer was performed with recovery. Unless an experienced gastric surgeon is available, surgical interference in the presence of persistent active bleeding is far more dangerous than medical treatment.

I have repeatedly been called to operate upon patients who have had several hemorrhages, the operation to be performed in the interval. The pathologic findings have been variable. In some instances no open lesion could be found. This bears out the theory that the acute ulcer frequently heals and, due to an unknown factor, relapses again, the time required to heal being remarkably short in some instances. At other times a chronic indolent ulcer was found, often invading the deeper structures of the bowel wall or even the pancreas. The method employed in dealing with this type of ulcer does not vary in general with the procedures already outlined. I am inclined to perform a subtotal gastrectomy more frequently in this type of case than in those which do not bleed. In those cases in which at operation no ulcer can be found the administration of 30 cc. of blood subcutaneously every thirty days, over a period of months or even years, will often yield gratifying results.

Those cases of chronic duodenal ulcer with marked obstruction demand surgical relief. The average case responds well to a gastroenterostomy; however, I have had several failures. These failures were in the main due to the patient's neglect to obey the prescribed postoperative instructions outlined for him. Even were the failures as high as 8 to 10 per cent, the difference in the mortality rate between gastrectomy and gastroenterostomy would justify a gastroenterostomy. It must be considered that the patient with obstruction is undernourished and due to vomiting is deficient in essential elements. He may appear to be in a satisfactory condition, yet experience has taught me that one may be mislead and a crisis may be precipitated by a prolonged surgical procedure.

Quite commonly patients with duodenal ulcer will develop *acute exacerbations* which will not yield to ordinary medical management. Pain is excessive, vomiting extreme and, due to alkaline medication, a state of alkalosis develops. There is a rapid loss of weight. Several vital conditions become operative, such as starvation and alkalosis. Isolated cases may be treated with an indwelling duodenal tube through which water and food may be administered, but the majority of these cases are confronted with either a subtotal obstruction or obstinate pyloric spasm. This prevents the tube from passing into the duodenum. Moreover, the persistent vomiting often prevents retention of the tube.

Recently I reported a series of such cases, in which I recommended jejunostomy with jejunal alimentation as the procedure of choice. This procedure can be used in gastric as well as duodenal ulcers. The jejunostomy is done rapidly under a gas anesthesia and an exploration carried out at the time. Feeding can be instituted within twenty-four hours and the patient satisfactorily nourished for a long period of time if necessary. The pain is relieved within twenty-four to forty-eight hours, a water balance can be easily maintained, adequate vitamin intake can be assured and the stomach is put at rest, a condition favorable for the healing of the ulcer.

The diagnosis of *perforation* of a duodenal ulcer is rarely missed at the present time. The characteristic onset with very acute epigastric pain, associated with the board-like rigidity of the abdominal wall, following a typical history of peptic ulcer, is almost pathognomonic. It can be simulated by acute pancreatitis or thrombosis of the mesenteric vessels. Recently the roentgen examination of the abdomen in case of suspected ulcer perforation has been stressed. In a few selected instances this procedure may be of assistance, but in the average case I do not believe the time consumed or element of error justifies the procedure. Diagnosis of perforation of an ulcer should be followed immediately by operation since it is known that, if an operation is performed within five hours, the percentage of cures is almost 100 per cent. Each hour thereafter adds to the mortality rate so that at twenty-four hours it approaches 100 per cent. I have operated upon one case, after the twenty-four hour period, that recovered.

Since the operation for perforation must be done without delay, it may be wise to mention a few of the salient points in the technic. It has been said that the mortality in such cases is less in the hands of the inexperienced surgeon if the case is operated upon early than in the hands of the experienced surgeon if done late. The operation is comparatively simple. In the majority of cases, when the abdomen is opened, air and bile-tinged fluid will be found in the peritoneal cavity; in some instances food particles may be present. Usually, by drawing up the duodenum, the perforation can be brought into view. This should be closed with a through and through suture and inverted with a silk purse string. Occasionally the perforation will be surrounded by an area of induration which prevents a secure closure. If one persists in trying to close such a wound, more damage will be done since the sutures tear through the friable tissues and will not bring about a tight closure. In some instances a purse string suture placed well away from the site of perforation will allow an inversion of the entire ulcer-bearing area of induration. In such instances the mass inverted may occlude the lumen of the duodenum and demand a gastroenterostomy. The size of the inverted mass, the condition of the patient and the surgeon's ability to perform a gastroenterostomy must decide the problem in the individual case. My opinion is that unless the surgeon is definitely sure that he can cope with the situation, only the closure should be done. Only the exceptional case will develop obstructive symptoms. Instead of the wide inversion, the edges of the perforation may be approximated with through and through sutures drawn just snugly enough to bring the edges together. A fair sized tag of omentum is then sutured over the site of the perforation. It is the concensus of opinion that this procedure is adequate.

The care of the soiled peritoneal cavity may be commented upon. When food particles are present they should be removed by wiping them out with moist lap-pads. Excessive fluid may be removed with a sucker. Irrigating the peritoneal cavity, in my opinion, is unwise since it tends to disseminate contamination. Evisceration should never be done; the less the peritoneum is traumatized the less likely is a peritonitis to develop. When the patient is operated upon late and there is evidence of infection, drainage may be employed, but in the early cases the abdomen should be closed without drainage. There is considerable question as to whether drainage is ever of any benefit. After the operation the patient should be given physiologic salt solution subcutaneously, even though he be in good condition. A water balance assists the patient in combating infection and affords comfort.

As soon as the patient has responded to the effects of the operation the head of the bed should be raised so that any fluid in the peritoneal cavity will gravitate into the pelvis. This, I believe, is one of the most important aids in abdominal surgery. I make it a routine in all abdominal surgery to elevate the head of the bed about eight to ten inches. When the patient is lying flat upon his back any fluid in the peritoneal cavity has a tendency to gravitate up around the liver and into the subphrenic spaces. Here it becomes walled off and may lead to a subphrenic abscess. It is a known fact that a secondary abscess under the diaphragm is frequently the fatal complication of a perforated ulcer. It can be prevented by posture.

The only case of postoperative subphrenic abscess that I have encountered in my practice in recent years followed the removal of a common duct stone in which, because of severe liver shock, it was necessary to elevate the foot of the bed for a period of time. I am convinced that the posture of the patient was directly responsible for the unwelcome complication. The pelvis tolerates infection much better than the subphrenic area. Moreover, the surgical care of a pelvic abscess is simple in comparison to locating and draining a subphrenic abscess.

Much that has been said relative to duodenal ulcer applies to gastric ulcer. However, some forms of gastric ulcer are peculiar in their response to surgical management. In many instances the *large ulcers* which have perforated into the liver or pancreas will not respond to medical management, pain becomes intolerable and acute exacerbations of vomiting may threaten the life of the patient. This type of ulcer is a real problem, irrespective of the treatment employed. Since the operation necessary to cure the patient involves technical difficulties and is time consuming, the patient must be in condition to withstand the procedure. In many instances the ulcer-bearing area is infected, as evidenced by redness and edema with marked infiltration of the wall of the stomach extending far beyond the confines of the ulcer. This infiltration does not permit secure suturing of the stomach walls and a leakage is quite likely to occur and to be followed by a fatal peritonitis.

The acute infection also is a condition which must be respected. It will be noted that the regional lymph glands are enlarged. These can be differentiated from metastatic carcinomatous glands or cancerous nodules in that they are pink in color and are oblong, while the carcinomatous glands are hard and frequently round or irregular in contour. It is unnecessary to state that in some instances the problem is not so easy to decide. It is unwise to remove an acutely infected ulcer, since there likely will be a spread of the infection which in many instances is due to the streptococcus and a fatal peritonitis may be precipitated. If the individual case is studied closely it will be found that in the infected cases a leucocytosis will be present and often persists for weeks, and fever of a low grade is not uncommon. Localized tenderness and rigidity are present.

If one is assured that the ulcer is not at the pylorus but along the lesser curvature or in the posterior wall, perforation into the free peritoneal cavity is very unlikely so that it is relatively safe to postpone the operation and allow the infection to subside. If the infection as indicated by the clinical symptoms does not subside and when the symptoms are distressing, the safest and surest procedure is a jejunostomy with jejunal feeding. Adequate feeding can be carried out over a period of months, the stomach put at rest, and complete healing of the ulcer ensues. I have performed gastroenterostomy in such cases, even though the pylorus was patent and there was no hyperacidity, in fact, an anacidity, with good results. However, I believe that caution should be exercised in advocating gastroenterostomy in ulcers of this type. When the infection about the ulcer subsides, ample time should be allowed under strict management before an operation is performed. It is not uncommon for large penetrating ulcers to heal under medical management, though they have a tendency to recur.

The operation that in my hands has given the best results is resection of the stomach, removing that portion from above the ulcer to include the pylorus. A Polya or some modification is usually employed. In some instances I have done a V resection of the ulcer area with gastroenterostomy with good immediate results, but I have seen recurrence of mild symptoms which suggested either a return of the ulcer or a stomal ulcer. I have had little experience with the "sleeve resection" but experience of other surgeons indicates that the results are not the equal of partial gastrectomy.

In those cases of chronic gastric ulcer associated with an anacidity and stasis, it is desirable to administer dilute hydrochloric acid for a time before the operation is performed. The hydrochloric acid reduces the bacterial content of the stomach and so attenuates those organisms that remain that any soiling incident to the operation is virtually harmless.

The technical side of a gastrectomy in the presence of a penetrating ulcer offers many difficulties. Due to the high section of the stomach, because of the position of the ulcer, it often becomes very difficult to perform an anastamosis. When the ulcer has perforated into the pancreas, some care must be used in freeing it. Rather than injure the pancreas, it may be wise to trim away the edges of the ulcer, allowing the base to remain attached to the pancreas. When the ulcer has penetrated into the liver, there is less danger in the separation, but due to inaccessibility of the parts care must be used that excessive bleeding is not provoked by tearing into the liver substance or large vessels. In those cases which have been starved in consequence of the ulcer symptoms and when the adequacy of the suture line is in question, a complimentary jejunostomy should be performed. This provides a means for immediate nourishment, and rests the stomach so that healing of the suture line may take place without danger of leakage.

THE ULCER-CANCER PROBLEM

There has been much speculation as to what percentage of gastric ulcers become malignant, also what percentage of gastric carcinomas have their inception in chronic ulcer. There are apparently two types of gastric carcinoma: (1) the primary carcinoma arising in stomachs, often the seat of a chronic gastritis with anacidity, (2) carcinoma that develops in a peptic ulcer. The first group comprises by far the largest percentage of cases and is by no means always associated with an anacidity. I have seen quite a few cases with a normal acidity and no erosion of the mucosa of the stomach. It must be conceded, however, that carcinomas of the stomach may erode early and may present the roentgenologic evidence of a peptic ulcer. This type of carcinoma may be mistaken for a benign ulcer or a malignancy secondary to peptic ulcer. Bloomfield[1] believes that primary carcinoma comprises two-thirds to three-fourths of all cases of carcinoma of the stomach.

Carcinoma secondary to peptic ulcer has been studied by many pathologists and the percentages vary in the opinions of these investigators. It has been placed as high as twenty per cent or even higher; however, the concensus of opinion at this time places it at about 5 per cent. Alvarez and McCarty, in 1928, stressed the size of the ulcer as a criterion in the diagnosis, believing that the large defects indicated carcinoma while the smaller ones were simple ulcers. Every surgeon who has had much experience with peptic ulcer will have had ample opportunity to contradict this theory. Large spreading peptic ulcers of the stomach are frequently encountered, while on the other hand small carcinomatous ulcers are equally frequent. The clinical history may be very misleading during the early period of the disease.

A long period of chronicity speaks for a benign lesion, although a specific lesion may be benign for a number of years and then suddenly undergo malignant changes. The transmutation may manifest itself in the clinical history only after some time has elapsed and when the situation is hopeless. On the other hand, the history and roentgen findings may be misleading. Recently my attention was called to a case which indicates this point. A woman over 60 years of age had suffered for years from symptoms characteristic of peptic ulcer. Several months before coming under the observation of the consultant in medicine her symptoms changed. The pain was not relieved by alkalies or more food, but was constant and boring in type. There was loss of appetite and weight. A roentgenogram revealed a constant prepyloric defect which was irregular. No other diagnosis could be made rationally but a carcinoma following in the wake of a peptic ulcer. A resection was done and, much to the surprise of the surgeon, no organic lesion could be found in the resected portion of the stomach.

There is little question but that gastric symptoms, appearing in an individual after the age of forty who has had no previous complaint, are strongly suspicious of carcinoma. The severity or nature of the complaint is no indication of the stage of the carcinoma. Several years ago I operated upon a man who was in the early forties. About two months before coming under observation he began complaining of mild epigastric distress after the taking of food. He consulted his physician who told me that, because of the mildness of the symptoms, he was about to put him on a dietary regime but upon hearing that he could have some roentgen studies made without expense to the patient, submitted him to such a study. A large filling defect of the stomach was found. In exploring him a few days after the study I found a massive malignant invasion of the gastric wall with extensive metastases. Here was an individual who had lost no weight, had a good appetite and an insignificant history of two months, yet had a hopeless carcinoma of the stomach. Carcinomas which arise at or near the pylorus cause symptoms quite early in their course because of interference with motility, while those arising in the fundus of the stomach may be asymptomatic for a long period of time.

Gastric secretion gives little tangible information. Many chronic peptic ulcers are associated with an anacidity, while in carcinoma there may be found a normal acidity or one even higher than normal. Anacidity is probably due to the chronic gastritis which in turn may be due to the chronic ulcer. In a study of ninety-two cases of carcinoma of the stomach Bloomfield found in 76 per cent there was anacidity, while in 24 per cent there was free hydrochloric acid. He believes that the anacidity commonly found in gastric carcinoma is associated with a chronic gastritis antecedent to the growth and that it is not the result of the destruction of the mucous membrane by the carcinoma. He believes that chronic gastritis and anacidity favor the appearance of carcinoma.

Considerable attention has been paid to the presence of blood in the gastric contents in an effort to differentiate carcinoma from ulcer. Some believe that with adequate medical treatment the persistence of blood in the gastric contents is indicative of a resistant or progressive ulcerating lesion which in all likelihood is a carcinoma. Early cases of carcinoma of the stomach may not bleed, while peptic ulcers may show a definite resistance to medical management and continue to bleed. I have seen the typical "coffee ground" stomach contents so fre-

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1. Bloomfield, A. L.: Diagnosis of Early Cancerous Changes in Peptic Ulcer. J.A.M.A., 104:1197-1201, April 6, 1935.

2. Emery, E. S., Jr. and Monroe, R. T.: Peptic Ulcer; Nature and Treatment Based on a Study of 1,435 Cases. Arch. Int. Med., 55:271-292, Feb., 1935.

GASTROJEJUNAL ULCERATIONS

Gastrojejunal ulcers mar the results of all types of surgical procedures employed in the treatment of peptic ulcer. Paterson stated that in his opinion there were two types of these ulcers, the jejunal which is situated in the jejunal wall usually opposite to the stoma and the gastrojejunal which is situated at the junction or anastomic line and extends either to the gastric or jejunal side. Many theories have been advanced to explain the etiology of these ulcerations, among them being the use of nonabsorbable suture material, trauma of clamps in performing the anastomosis, the strangulation of tissue by sutures, infection, thrombosis of vessels with digestion of the tissues, the effect of high acid gastric juice on the jejunal wall which is not accustomed to it and disturbances in the innervation of the parts. There seems to be little doubt but that improvements in the technic of gastrointestinal anastomosis have lowered the percentage of its occurrence. However, in spite of careful attention to technical detail and careful selection of cases this unfortunate complication still presents itself in a demonstrable number of cases.

Wright[3] has recently made a careful survey of the subject in a "Collective Inquiry by Fellows of the Association of Surgeons of Great Britain and Ireland." Of 5,964 patients operated upon for peptic ulcer, 3,808 were traced. Posterior gastroenterostomy had been performed for duodenal ulcer in 2,734 patients, of whom it was possible to trace 1,730. Of this group, 70 or 4.04 per cent developed proven gastrojejunal ulcers. However, there were an additional 77 cases in which gastrojejunal ulcer was diagnosed clinically but not proven by operation. This would give a combined incidence of 8.49 per cent. Of 884 cases of gastric ulcer in which posterior gastroenterostomy had been performed, 507 were traced. Twenty-seven or 5.32 per cent had proven gastrojejunal ulcers and 26 diagnosed clinically, making a total of 10.45 per cent. In 29 traced cases of duodenal ulcer in which partial gastric resection had been performed with an anterior Polya anastomosis no gastrojejunal ulcer was reported; however, in 77 cases in which a posterior Polya operation had been performed, two or 2.59 per cent developed gastrojejunal ulcers. It is interesting to note that in 38 traced cases in which a Billroth I operation for duodenal ulcer had been performed, eight or 21 per cent were diagnosed clinically as having gastrojejunal ulcers.

Wright believes that a fair estimate of the occurrence of gastrojejunal ulcer following posterior gastroenterostomy for duodenal ulcer is about 5 per cent. The foregoing statistics further indicate that gastric resection for duodenal ulcer is associated with a definite percentage of gastrojejunal ulcerations. This should be seriously considered when deciding upon the procedure which entails a definitely higher operative mortality than a gastroenterostomy. Wright states that of 436 patients with gastric carcinoma which were traced none developed secondary ulcers after gastroenterostomy.

Gastrojejunal ulceration is far more serious than primary peptic ulcer. The pain is more severe, vomiting in many cases is frequent and intensive and there is marked and progressive loss of weight. Bleeding may be severe at times. The pain is continuous and is not relieved by alkalies as a rule and is often so severe as to prevent sleep. As complications develop, other distressing symptoms may appear. Perforation into the free peritoneal cavity may occur. When the ulceration follows a posterior gastroenterostomy, the perforation is more likely to occur into the mesocolon. This brings about a fixation of the colon to the ulcer with the possibility of subsequent formation of a fistula between the colon and the jejunum. Perforations into the abdominal wall have occurred.

The treatment of gastrojejunal ulcers is far from satisfactory. The only medical treatment which brings about any decided relief is mucin therapy. Because of the extreme symptoms over a long period of time the patient is devitalized and starved and any surgical procedure must be carried out on an individual who is a poor surgical risk. The fact that any type of reparative surgical work is time-consuming adds to the risk. In my opinion the procedure of choice in those cases which are poor risks is a jejunostomy and jejunal feeding. By this procedure, the pain will be relieved and the patient can be adequately nourished for a long period of time. This will allow the ulcer to heal and, if a stenosis of the stoma has occurred, a reconstructive operation can be done at a time when the patient is in good condition and can withstand the ordeal in relative safety. In the favorable risks a radical operation should be performed, since it has been proven that any local procedure is unsatisfactory.

Earlier in this paper I alluded to an experience in restoration of normal gastrointestinal continuity after gastroenterostomy for duodenal ulcer. These cases as a rule have a recurrence of the duodenal ulcer, sometimes very promptly. Disconnecting the gastroenterostomy, resection of the ulcer and performing a new gastroenterostomy yields about 20 per cent of cures. The best results, 60 to 70 per cent cures, follow a wide gastric resection with a Polya type of anastomosis. This is a time-consuming and difficult operation and should be attempted, only if the operator is familiar with this type of surgery and the patient is a satisfactory risk. In the statstics gathered by Wright the operative deaths and those due to secondary ulceration accounted for 22.7 per cent of the patients who suffered from gastrojejunal ulcers.

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[3] Wright, G.: Collective Inquiry by Fellows of Association of Surgeons into Gastrojejunal Ulceration. Brit. J. Surg., 22:433-455, Jan., 1935.

In the presence of a gastrocolic fistula some type of surgical interference is imperative. From a technical point of view, these cases offer many obstacles and in the entire realm of surgery there is no operation so time-consuming and difficult of execution. There is required a separation of the colon from the stomach with at times a resection of a portion of the colon and an anastomosis, the disconnection of the jejunum from the stomach and the excision of the jejunal ulcer which at times entails a resection of a part of the jejunum with end-to-end anastomosis and a gastrectomy. It need not be commented upon that this requires much time and not a little skill.

In this rather brief survey I have endeavored to give my conception of the surgical management of peptic ulcer. A note of pessimism may prevail, though I do not wish to have this overshadow the issue. The surgeon sees that type of ulcer which has not responded to the applied medical treatment or has developed complications which remove it from the category of a simple manifestation of a disease. Because of indiscriminate operating or illogical selection of operative procedures, many poor, if not disastrous results, have resulted. Operations are condemned because they are so frequently employed under circumstances when not indicated. Such is truly the case with gastroenterostomy.

A close working association between the internist and the surgeon is imperative in the management of peptic ulcer if the best results are to be obtained. I am firmly convinced that if each individual case is studied from the viewpoint of peptic ulcer as a disease with local manifestations in the gastric or duodenal wall and the disease treated, fewer and fewer cases will reach the stage at which surgery will be necessary. When this residue of cases is further studied, a logical surgical procedure will be found which will relieve the local symptoms in the largest percentage of cases. When this can be accomplished optimism will reign.

AN IMPROVED CLAVICULAR CRUTCH SPLINT*

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Possibly no fracture brings more worry to the doctor nor greater discomfort to the patient than fracture of the clavicle. Since the bone is small and the structures surrounding it are little different from those surrounding fractures elsewhere in the body, we know that the cause is not an anatomic one. Why, then, do we find such a simple little fracture assuming major proportions in the production of worry to the doctor and annoyance, discomfort or downright pain to the patient? The answer to this question seems to be that the types of dressings used have been faulty.

Ever since the first clavicular fracture, methods have been devised with the hope of accomplishing the two-fold purpose of a proper reduction with a minimum of discomfort. Innumerable devices have been brought forward, some of them reducing the torture to some extent, but none have been found that were satisfactory or comfortable to the patient who has been compelled to go along enduring unnecessary discomfort in order that he might get a satisfactory union of his fracture.

Some years ago the writer was confronted with a patient who had a clavicular fracture with injuries to the shoulder and arm as well, and no dressing could be found which would take care of the fracture without producing intolerable pain. To meet this condition a crutch splint was devised and not only was it found satisfactory in the case at hand but it has been used many times since, both by the writer and others, and always with gratitude upon the part of the patient because of freedom from pain. It has seemed to us, therefore, that the principle of a crutch splint for clavicular fracture was sound. As time went on, certain imperfections were observed and certain inconveniences in its use discovered. Corrections and adjustments of these were made as experience in the use of the original splint brought them out, so that finally the present splint was developed and it is believed that it more nearly than any other fulfills the dual purpose of a satisfactorily maintained reduction with a minimum of discomfort.

We have recently had fourteen cases of patients of other doctors in various parts of the state, where from two to as many as five different methods or devices had been used, none of them being satisfactory. We consider it strikingly significant that in not one of these cases was any other device ever called for after the crutch splint was applied, reduction in each case being maintained to the doctor's satisfaction and the patient's absolute comfort. It is also especially significant that practically all of the orthopedic surgeons in Seattle are using and approve the crutch splint.[1]

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*Read before a meeting of King County Medical Society, Seattle, Wash., November 4, 1935.

Having been a victim of clavicular fracture, the writer can speak feelingly on the subject of the discomfort of certain of the dressings in common use. The "crucifying" or "double cross," any modification of the velpau, plaster of paris, or "reinforced concrete" are not, in this writer's judgment, justified today. When all bound up in one of these dressings and knowing full well the consequences of the performance, this victim of clavicular fracture, in the middle of the night, tore off the dressing and threw it in the garbage can. The next day the doctor wanted to know why a dose of morphine had not been taken.

There should be need for no further comment on this point, for we know that if a fracture is properly reduced and in a proper dressing, there is no pain and the use of morphine should be obviated always when possible. The doctor owes it to his patient to give him comfort and satisfactory rest during convalescence just as much as to obtain ultimately a satisfactory result, and this without the use of any narcotic. Not only so, but the patient is entitled to be returned to his work just as soon as possible and in his best physical condition.

With the crutch splint the arm is absolutely free and can be used for many kinds of light duty. Thus bone and muscle atrophy is obviated and the laboring man can return to duty the day the splint is removed, while stenographers, bookkeepers, pianists, etc. can go right along with their duties. We have had several cases, whose only time loss was that occasioned by the examination on the first day, including roentgenograms and the adjustment of the splint.

The clavicular splint consists of a padded aluminum plate which fits over the hip about on a level with the crest of the ilium, figure 1, *a*. To this plate is riveted a steel tube *b*, with a swivel arrangement. The crutch portion, *c*, is composed of a moldable steel arc which is covered over with the softest spongy material and which almost encircles the shoulder. This steel arc is made to incline inward at an angle of from thirty to forty degrees and rests upon a steel screw, *d*, which fits into the lower portion or tube, *b*. This upper portion can be raised or lowered in the tube as required for tall or short individuals. The wing nuts, *e*, spin rapidly up and down as required in adjustment. A canvas belt, *f*, fastens the lower portion around the body. Strap *g* helps to hold the splint firmly in postion. A padded aluminum plate, *h*, fits under the arm on the uninjured side and to each end of this plate straps, *i*, are fastened and these extend over to the crutch portion on the injured side both in front and back.

Figure 1, *c*, c^1 and c^2, demonstrate the various positions into which the crutch portion can be molded as required. The same is shown in the back view of fig. 2, c^3.

The splint is best adjusted under the fluoroscope, a roentgenogram having first been taken. Since the clavicle serves to help support the shoulder, fracture of it causes the shoulder to drop and, therefore, the outer fragment practically always points upward. Under the fluoroscope the crutch is lifted up until we see the fragments in satisfactory alignment. Then the wing nuts, marked *e* in the sketch, are spun rapidly down the shaft until they rest upon the tube of the lower portion, thus anchoring the splint. Next, the crutch portion is molded to the shoulder, front and back, as snugly as possible. The dropping forward of the shoulder is corrected by drawing tightly strap marked *i* in fig. 1, cinching it up very much like the girth of a saddle until we can see the fragments in satisfactory apposition. A picture is then made to verify and record the result.

The first question asked many times by doctors unfamiliar with this splint is, "what about crutch paralysis?" The answer is that it never has occurred and will not for the reasons: first, the portion under the arm is of softest spongy texture; second, there is never continuous, invariable pressure as the arm is free and the patient can make himself comfortable without in the slightest disturbing the position of the fragments.

ADVANTAGES OF THE CRUTCH SPLINT

1. Comfort. With no other device have we found patients as comfortable as those treated as listed above.

2. No guess work. The fracture is not reduced and then put up in some apparatus which may upset the reduction while the doctor hopes and prays for a successful result. With this method one can see exactly what he is doing until it is done and this is impossible with plaster of paris casts, "reinforced

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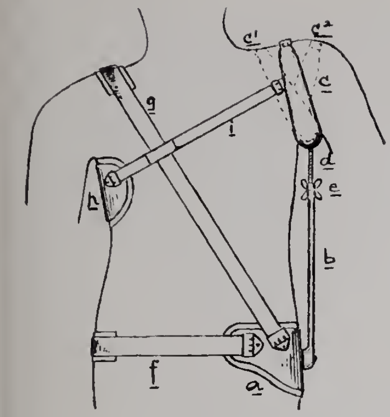
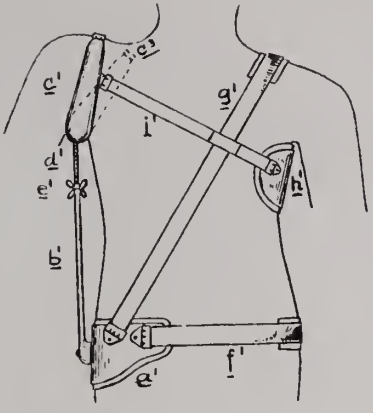
[1] These include Drs. Roger Anderson, H. J. Wyckoff, M. E. Lile, D. A. Murray, J. L. LeCocq, Edward LeCocq, D. G. Leavitt, H. L. Leavitt.



Front View
Fig. 1.



Back View
Fig. 2.

concrete” and other devices which make for a prolonged healing and cause atrophy of both bone and muscle.

3. Free use of arm and hand. It prevents muscle atrophy and joint stiffness, the patient being able to return to his work as soon as the dressing is removed.

4. Simplicity. Under the fluoroscope the nurse or anyone else who can see can apply this splint and reduce the average fracture just as well as the doctor, reduction therefore being practically automatic.

SUGGESTIONS

1. The patient should be seen regularly the first few days so that the crutch may be elevated or lowered and the strap holding the shoulder back tightened or released as may be indicated.

2. To prevent numbness and tingling the first few days the patient is instructed to elevate the elbow to about 40° and rest it on the back of a chair or similar support; also at night put a pillow between the arm and body high up in the axilla for the same purpose.

3. Occasionally in fat people or those with tender skin, the skin becomes chafed. To prevent this, very old soft linen saturated with ordinary vaseline is placed over the crutch portion that fits under the arm.

4. Also in fat people the pelvic plate sometimes slips. To obviate this a strip of adhesive two inches in width is fastened over the pelvic support and made to extend about half way around the body. For exceptionally tall people a supplemental extension is necessary and can be furnished.

No device is a sure hit for every case of clavicular fracture. For example, we have seen two cases where in addition to fracture there was a dislocation of the outer end of the clavicle. In one of these reduction and union were as satisfactory as in any of the cases. In the other the outer fragment could be manipulated into position under the fluoroscope but could not be maintained and probably it will be necessary to do an open reduction on account of the tearing of the acromioclavicular ligament.

We have discovered, too, that very thin and very tall people are difficult cases, especially the very thin ones, and this for the reason that there must be more support for the pull which is required than can possibly be had in these very thin individuals. The worst case of this kind was an old lady, 73 years of age. She was more comfortable in the crutch splint than in any other device, and certain it is that she could not have been treated very satisfactorily by any other method.

There is an old adage that “there is never anything new under the sun,” and so before presenting this splint to the society a thorough search of the literature was made. Dr. F. H. Hamilton[2] of Philadelphia had a somewhat similar idea in a device which he used for several years prior to publication of his article in 1866. No one else seems to have adopted or followed his principle and so it went into the discard.

In 1917 the writer[3] published a paper on his original splint and in 1933 Henry[4] published an article on a clavicular crutch splint.

The only individual who has aided in developing this splint is Mr. Julius W. Fisher, a brilliant mechanic with the Lundberg company, who manufacture it. The writer wishes to express grateful appreciation for his fine cooperation, intelligent understanding and helpful suggestions.

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[2] Hamilton, F. H.: Fractures and Dislocations. Henry C. Lea, Philadelphia, 1866.

[3] Kelton, W.: Fracture of Clavicle. J. A. M. A., 68: 1814, June 16, 1917.

[4] Henry, M. O.: Improved Clavicle Splint. J. Bone & Joint Surg., 15:809-810, July, 1933.

INTERNAL HEMORRHOIDS

DETERMINATION OF TREATMENT *

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SEATTLE, WASH.

In the last two or three decades there have been several improvements in the method of treating internal hemorrhoids. It must be admitted, however, that under the older surgical procedures, which are still used sometimes in more or less modified form, most excellent results were obtained.

A perusal of the chapter on the treatment of internal hemorrhoids in Allingham's work on Diseases of the Rectum, published in 1873, is well worth reading for the man whose head is in a whirl after reviewing the fifteen or more surgical methods of treating this condition in modern surgical encyclopedias. It shows that, with a thorough knowledge of the pathologic anatomy of the condition, even the simplest surgical technic will give excellent results.

Miles[1] in 1919 reported 5,000 cases treated by the old ligature strangulation method with "uniform success." He stressed the importance of the surgeon's knowledge of the pathologic involvement in each case, proper preparation and aftercare.

If, then, we are willing to admit the large percentage of successful results that were possible under the old methods, wherein can lie the improvements of modern days. Our improvements have been:

1. The adoption of local infiltration or block anesthesia for chloroform and ether.
2. Shortening of the period of hospitalization from ten days to three weeks to three days to one week.
3. Doing away with much severe postoperative pain, and decreasing the number of cases of postoperative hemorrhage.
4. Many refinements in surgical procedure in the second and third stage cases, wherein the method of operating may be adapted to the individual case, or methods may be combined.
5. And last and most important of all, the use of injections which, in hemorrhoids of the first and in many cases of the second stage, gives most excellent results without pain or hospitalization.

In order to take advantage of the refinements of modern proctologic practice and to determine the best method or combination of methods to use in a given case, it is necessary to have an exact knowledge of the pathology. While a digital and anoscopic examination are alone necessary in cases of the first stage of development where no protrusion occurs on defecation, an examination of the hemorrhoids while protruded is the only method by which an exact knowledge of the amount and nature of the prolapsus can be demonstrated in cases of the second and third stages. This paper is merely a plea for the more frequent use of this simple and valuable procedure.

It has been my custom for many years, whenever a patient presents himself with a history of protruding hemorrhoids, after making the usual rectal examination, to give the patient a rectal injection of about a pint of water. He is then requested to repair to the toilet and to use as much force as possible in getting the hemorrhoids completely prolapsed. Without wiping the parts, a towel is placed over the anus and the patient returns to the table for inspection. If the physician has no toilet in the office, it is perfectly feasible to use the public lavatory on the same floor, or the examination can be made in the patient's home.

By this method, and this method alone, can the following important points be determined:

1. The general size and texture of the internal hemorrhoids. Palpation of the protruded tissue between the thumb and finger will give a good idea of the relative amount of varicosity and fibrosis, or, as sometimes occurs, it may be found to be purely a prolapsus of the rectal mucosa.

2. The amount of the tissue involved in the prolapsus.

a. The sulcus between the anal wall and the hemorrhoids is in the upper portion of the anal canal at the pectinate line. The anal lining is intact.

b. The sulcus between the hemorrhoids and the anal wall is at the lower end of the anal canal, at the intermuscular septum where the longitudinal rectal muscle of the rectum through one of its fibromuscular septa is attached to the anal lining, after passing between the internal sphincter and the superficial external sphincter[2] (fig. 1, 2, 3). In these cases the lining of the anal canal has been dissected up by the hemorrhoid and forms its lower covering (fig. 4). This is an important surgical point, as removal of too much of the anal lining leads to postoperative contracture.[3]

c. In those rarer cases in which the anal lining is

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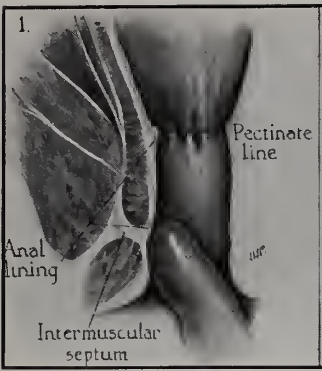
* Read before the Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

[1] Miles, W. G.: Observation on Internal Piles. Surg., Gynec. & Obst., 29:497, Nov., 1919.

[2] Milligan, E. T. C. and Morgan, C. N.: Surgical Anatomy of Anal Canal, with Special Reference Anorectal Fistulae. Lancet, 2:1150, Nov. 24, 1934; 1213, Dec. 1, 1934.

[3] Fansler, W. A.: Surgical Treatment of Hemorrhoids. Minnesota Med., 17:254-255, May, 1934.



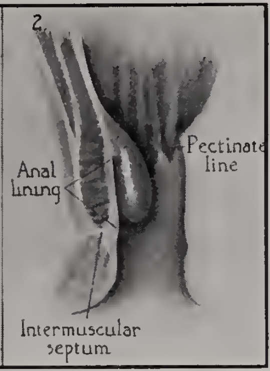
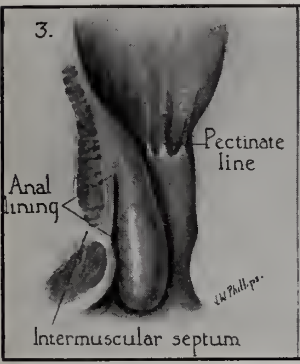


Fig. 1. Normal anal canal. The tip of the finger is pressing into the sulcus of the intermuscular septum.

Fig. 2. Internal hemorrhoid of first degree. No prolapse of anal lining.



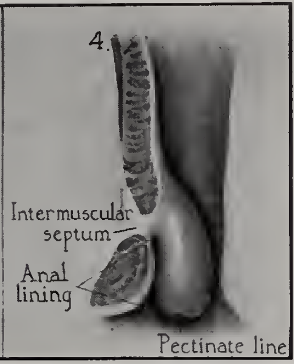
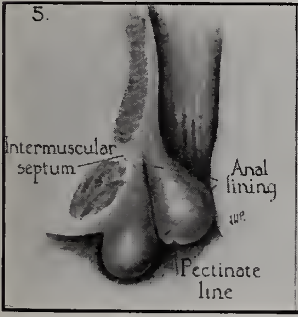


Fig. 3. Internal hemorrhoid of second degree. No prolapse of anal lining.

Fig. 4. Internal hemorrhoid of second degree with prolapse of anal lining.



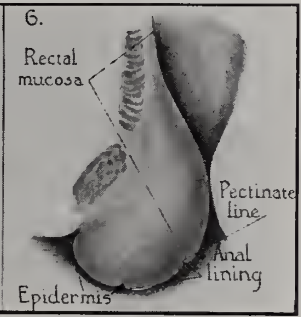


Fig. 5. Internal hemorrhoid of second degree with prolapse of anal lining and involvement of external hemorrhoidal plexus.

Fig. 6. Hemorrhoid of third degree, in which all attachments of anal lining have been separated, allowing complete herniation of the lower rectal mucosa and anal lining with extensive involvement of the external tissues.

completely prolopsed, the fibrous adhesions at the mucocutaneous line are stretched or destroyed and the external hemorrhoidal veins are affected, giving a large, smooth mass with no sulcus between the internal and external hemorrhoids, the lower part of this mass being covered with a true skin, the intermediate portion with transitional epithelium of the anal lining, and the upper part rectal mucosa (fig. 5).

d. There is little or no internal involvement, but instead we find an extensive varicosity of the external hemorrhoidal plexus which bulges on both anal surfaces, closely simulating a prolapsus. The covering of these swellings is skin and transitional epithelium and the defect is bounded above by the pectinate line. These cases are not diagnosible by inspection or palpation except an enema be given, unless in a condition of thrombosis (fig. 6).

After having made our examination as previously outlined, and thus having obtained an exact knowledge of the extent and nature of the defect we have to correct, we will be able to decide whether the injection method is appropriate either as a curative or palliative measure, or which type of surgical procedure will be most expedient. We can also decide upon the type of anesthesia to be used.

FORMS OF ANESTHESIA

1. In the cases operated upon in the office, local infiltration anesthesia should be used. It is also the safest anesthetic for first and second stage cases operated upon in the hospital. In very nervous persons, gas and oxygen can be added to prevent mental fear and perturbation. Gas alone gives insufficient relaxation.

2. In third stage cases, low spinal anesthesia is valuable, as it gives absolute muscular relaxation. In using spinal or sacral block, however, we have such complete relaxation that our muscular landmarks are lost, the prolapsus being at the same time exaggerated, so we must keep the picture in our mind formed during our original examination, otherwise, too much tissue may be removed. Ether, of course, may be very properly used in any case. However, nausea and vomiting are extremely unpleasant after a rectal operation, and straining during the operation is unpleasant and disconcerting, especially if any gas or liquid feces are present in the colon.

DETERMINATION OF METHOD OF TREATMENT

1. Unless the patient prefers an operation, I use the injection treatment in hemorrhoids in the first stage, and also in the early cases in the second stage where the sulcus on protrusion is at the pectinate line, the anal lining being intact. In both of these types, however, we often find an abnormally small anal canal or a fibrosis of the anal lining (pectinosis).[4] In order to obtain the best

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[4] Morgan, J. W.: Pectenosis and Minor Maladies of Anal Region. Surg., Gynec. & Obst., 59:806-809, Nov., 1934.

results, it is necessary to take care of this complicating and often causative factor. This can be done in the office by a divulsion or pectenotomy, the injections being started a week or so later. If either of these procedures is indicated, however, and the patient or physician should decide on hospitalization for the same, the hemorrhoids can better be removed at the same time.

Occasionally we find also considerable involvement of the external hemorrhoidal plexus which is not susceptible to injection, in which case the patient should be apprised of this fact. Otherwise, there may be some dissatisfaction at the conclusion of the treatment.

2. The more advanced cases of the second stage (where the anal lining forms part of the covering of the hemorrhoid) and the third stage cases are always treated surgically. However, if the patient is bleeding and the time is inappropriate for an operation, we are justified in using one or more injections as a palliative measure.

The length of this paper will not allow a discussion of the surgical treatment of the advanced cases of the second and those of the third stage. In some of them the external hemorrhoidal plexus is extensively involved, and it requires considerable judgment in devising a procedure which will correct the defect and leave the anal canal in good functional condition. The main problem is to preserve enough of our anal lining to prevent a subsequent stricture. If the clamp and suture is used, removing the varicose veins and redundancy through incisions parallel to the axis of the anal canal, at least half of the anal lining should be left intact between the areas of removed tissue.

Sometime the prolapsus is so extensive that a modified Whitehead, the amputative type of operation, will solve our trouble.[5]

CONCLUSIONS

1. The determination of the proper method of treating a given case of internal hemorrhoids is dependent upon the extent and nature of the defect.
2. This can only be ascertained by examination while the piles are completely prolapsed.
3. One cannot perform miracles with a few grains of phenol or quinine urea hydrochloride.

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[5] Rankin, F. W., Bargen, J. A. and Buie, L. A.: The Colon, Rectum and Anus. W. B. Saunders Co., Philadelphia, 1932.

CARCINOMA OF THE RECTUM *

A CONSIDERATION OF THE METHODS FOR LOWERING THE OPERATIVE MORTALITY, WITH SPECIAL REFERENCE TO INTRAPERITONEAL IMMUNIZATION

S. F. Herrmann, M.D.
TACOMA, WASH.

Cancer is always a serious affliction, no matter where it is found or what is the grade of malignancy, but in some locations it is more amenable to cure and offers a more hopeful outlook. Such a location is the rectum. We may confidently tell a patient, in whom a lesion is discovered which is localized in the rectum, that the chance of cure is very good, provided he will accept a colostomy and provided he survives the necessary surgical resection. He must choose between the chance of a longer life, free from cancer, with the inconvenience of caring for a colostomy, and a shorter life leading inevitably to misery.

Any physician, who has watched patients die of cancer and has seen others carry on normal lives after colostomy and resection, will not hesitate to advise the radical cure. An operation so radical as complete resection of the rectum carries with it a considerable operative risk. In the hands of the occasional operator this risk may be almost prohibitive. There are certain measures which will do much to lower this risk. It is these measures which I wish to discuss. There are four topics to be considered: (1) early diagnosis; (2) preoperative preparation; (3) proper choice of operation; (4) postoperative care.

EARLY DIAGNOSIS

The usual symptoms which bring a patient afflicted with cancer of the rectum to a doctor are obstruction or hemorrhage. These are late symptoms. We must pay attention to less compelling complaints, if we expect to find the curable lesions. Frequent discharge of mucus with the stool, slight evidence of blood, a feeling of fullness in the rectum, the onset of constipation when bowel habits have previously been normal, periods of diarrhea, a sense of incomplete defecation and lastly "piles," all demand more than cursory consideration.

Proctoscopic examination done for slight symptoms will disclose a lesion in the curable stage. There is no satisfaction in finding a large, ulcerating, obstructing, malignant mass. Perhaps a colostomy may prolong life, but the patient will seldom be grateful. His condition becomes progressively worse. It is this type of case which brings surgery

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* Read before a Meeting of Pierce County Medical Society, Tacoma, Wash., Nov. 26, 1935.

into disfavor. Unfortunately, it is not always the fault of the patient when a lesion has not been discovered until it has become inoperable. The practice of surgery would indeed be sordid, unsatisfactory business, if our patients all had hopelessly incurable lesions for which only palliative operations could be done. But to cure a cancer brings true joy of achievement. The first step toward experiencing this joy is frequent use of the proctoscope.

PREOPERATIVE PREPARATION

The usual period of preoperative preparation is at least four days. Even the presence of obstruction in the colon should not hurry us to the extent that no measures of preoperative rehabilitation are carried out. When the obstruction is less than complete, a few days of nothing by mouth with plenty of subcutaneous or intravenous fluids may allow the inflammation about the cancer to subside to the extent that the colon can be emptied by irrigations and even by purgation. If complete obstruction persists, the risk of cecostomy or colostomy must be accepted without preoperative safeguards other than adequate parenteral fluids. The risk then is tremendous and the outlook very unsatisfactory.

In the ideal case, where a reasonably early diagnosis has been made, the following procedure is carried out: A nonresidue diet is given; fruit juices with ten per cent Karo syrup, sugar-candy, or plain chocolate are kept at the bedside; broth, jello, sherbet or fruit ices are served at meal time. Two thousand calories and three liters of fluids are thus given per day. Mineral oil drams four b.i.d. and a saline enema b.i.d. are administered. Magnesium sulphate may be given in some cases. These general measures, by allowing one to operate on an empty bowel, greatly diminish the operative risk, but an added protection is gained by preoperative intraperitoneal vaccine.

I became interested in peritoneal immunization in 1927. and suggested a method. Rankin and Bargen[1] carried out my suggestions and reported a lowering in operative mortality from twenty-three to five per cent. Since then intraperitoneal vaccination has been used in over fifteen hundred colon operations at The Mayo Clinic. Dixon and Bargen[2] report a two-thirds reduction in postoperative deaths from peritonitis. More recently Rankin,[3] who was at first very enthusiastic, discounts the value of peritoneal immunization. He now feels that the lowering in mortality is due mostly to the other measures of preoperative rehabilitation.

I wish to point out that mere statistics cannot settle this question as long as the preoperative regime includes a number of measures in addition to intraperitoneal vaccination. The occurrence or nonoccurrence of peritonitis depends on many variable factors. Accidental breaks in surgical technic, with unexpected soiling of the peritoneum, must be considered. It is such accidents that test peritoneal immunity. Perhaps my own experiences would, therefore, be more illuminating than statistics based on large series of cases in which the flawless technic of master surgeons excluded peritonitis. Proper analysis of the individual case will help determine the value of immunization. It is certainly true that in the experimental animal peritoneal immunity can be established by intraperitoneal vaccination. This is borne out by the work of others[4] as well as my own. Is it not logical to assume that a similar mechanism of immunization will be operative in the human patient?

Two of my own cases seem to me to offer rather convincing evidence.

The first of these was a woman, forty-one years of age, with rectosigmoidal cancer. She was rather obese and seemed a poor operative risk. Because of nearly complete obstruction and local inflammatory adhesions at the peritoneal reflection, the Lahey[5] type of operation was done. Intraperitoneal vaccine was given before the first and again before the second stage operation. The suture closing the end of the rectosigmoid proximal to the growth loosened during the process of resection. A terrific wound infection developed postoperatively in both the anterior and posterior incisions. The tissues sloughed away down to the peritoneum. She died four weeks later, after a stormy course characterized by chills and fever. Autopsy showed suppurative pyelonephritis and vegetative endocarditis. The peritoneum, however, was perfectly smooth and free of infection. Here was widespread infection with invasion of the blood stream, but the local immunity of the peritoneum had been adequate.

I believe that without preoperative immunization and the same amount of soiling, this patient would promptly have developed peritonitis.

The other patient in whom peritonitis should logically have developed was one who had also been prepared by two intraperitoneal injections of vaccine. A posterior resection for carcinoma of the ampulla had been done, and an inverting suture was being placed on the proximal stump of the sigmoid when the right-angle crushing clamp loosened and slipped off, allowing a large amount of colonic contents to spill into the pelvic peritoneal cavity. This material was wiped away, the bowel stump was sutured, and the peritoneum closed. I remarked at the time that this patient would certainly die of peritonitis, unless the preoperative immunization had been highly successful. Much to our amazement and delight she made a perfectly uneventful recovery and is well today.

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[1] Rankin, F. W. and Bargen, J. A.: Carcinoma of Colon; Intraperitoneal Vaccination by Mixed Vaccine of Colon Bacilli and Streptococci. Arch. Surg., 19:906-914, Nov., 1929.

[2] Dixon, C. F. and Bargen, J. A.: Vaccination Preceding Colonic Operations as Protection Against Peritonitis. New York State J. Med., 35:529-532, May 15, 1935.

[3] Rankin, F. W.: Rectal and Rectosigmoidal Cancer. Surgical Treatment and Prognosis. Northwest Med., 34: 387-391, Oct., 1935.

[4] Steinberg, B. and Goldblatt, H.: Protection of Peritoneum Against Infection. Surg., Gynec. & Obstet., 57: 15-20, July, 1933.

I am convinced that intraperitoneal vaccine offers an added safeguard against such accidents. I could hardly have planned a more critical animal experiment. Such accidental soiling will occasionally occur despite meticulous care, and there is a satisfaction in knowing that the peritoneal defensive forces have been mobilized.

The exact mechanism of peritoneal immunity is not known. I showed by experiment that it was probably a local immunity[6] quite apart from general humoral immunity. The cellular response of the peritoneum has been described by Rixford,[7] and the general reactions to intraperitoneal vaccine by Trenouth and Bargen.[8]

I use a vaccine containing one hundred million streptococci and two hundred million colon bacilli per cc., prepared from cultures of cases of peritonitis. One-half cc. of this vaccine in fifteen cc. of physiologic sodium chloride solution is injected through an intradermal wheal of novocaine into the peritoneal cavity. A long blunt needle is used. The danger of perforating the bowel is practically nil. The patient complains of pain when the needle point reaches the sensitive parietal peritoneum. If one then begins the injection as the needle is pushed through, the bowel will be pushed aside by the solution, unless it is adherent to the abdominal wall. Perforation of an adherent loop probably would do no serious damage, because the general peritoneal cavity would not be entered. There is a varying amount of diffuse abdominal soreness with a rise in temperature beginning an hour or two after the injection. This reaction subsides completely within forty-eight hours. A second injection of one cc. of vaccine in fifteen cc. of saline is then given. Operation is undertaken two days later. The other preoperative measures have, of course, been carried out simultaneously.

I have never regretted giving the vaccine but I have regretted omitting it in one case, because that patient died of peritonitis. Patients do not complain much about the reaction, if the purpose is explained to them. They are for anything which diminishes the surgical risk. Bargen and Dixon are now giving only one dose of vaccine forty-eight hours before operation. I still believe two doses are more effective.

CHOICE OF OPERATION

The simplest operation which will give a reasonable prospect of cure must be selected in each case. Decision of the exact procedure cannot be reached until the time of exploration. Complete abdominoperineal resection carries a higher risk in most hands than the simpler posterior resection of Mummery. An old or feeble patient with a low-grade malignancy in the rectal ampulla will certainly be better served by this simpler operation, consisting of a loop colostomy and posterior resection. If the growth is located above the peritoneal reflection, a combined abdominoperineal operation must follow preliminary colostomy.

In the presence of obstruction or extensive swelling and infection I like the Lahey operation because it allows drainage and irrigation of the involved bowel. When there is little or no obstruction, the distal end of the sigmoid can be safely closed at the time of establishing a single-barrel colostomy and combined abdominoperineal resection carried out later. This is the Miles operation which has been modified by Rankin. I have had no occasion to attempt abdominoperineal resection in one stage.

A ray of hope recently has appeared in the method of managing low-lying inoperable growths by use of electrocoagulation through a proctoscope. Several reports indicate satisfactory results in relieving or averting obstruction by this method.[9, 10] It is quite possible that this method will replace palliative colostomy in all such cases. It certainly seems to offer much more than radium or roentgen rays. It has served me very well to arrest bleeding and prevent obstruction in the case of an old woman with a large bleeding polypoid carcinoma of the rectal ampulla, complicated by active pulmonary tuberculosis.

POSTOPERATIVE CARE

Two principles of postoperative care in all colostomies were taught to me by the late Dr. Sistrunk. (1) Give nothing by mouth for at least two days. Fluids are supplied by hypodermoclysis. (2) Open the colostomy as late as possible. In the loop type of colostomy this may be as long as ten days. The clamp on an obstructive colostomy can be left

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[5] Lahey, F. H.: Method of Two-stage Abdominosacral Removal of Cancer of Rectum. New England J. Med., 204:1279-1282, June 18, 1931.

[6] Herrmann, S. F.: Experimental Peritonitis and Peritoneal Immunity. Arch. Surg., 18:2202-2215, May, 1929.

[7] Rixford, E. L.: Cytologic Response to Vaccine Administered Intraperitoneally to Man. Proc. Staff Meet. Mayo Clinic, 8:586-591, Sept. 27, 1933.

[8] Trenouth, S. M. and Bargen, J. A.: Temperature Reactions after Intraperitoneal Vaccination. Proc. Staff Meet. Mayo Clinic, 8:583-586, Sept. 27, 1933.

[9] Strauss, A. A., Strauss, S. F., Crawford, R. A. and Strauss, H. A.: Surgical Diathermy of Carcinoma of Rectum; Its Clinical End Results. J. A. M. A., 104:1480-1484, April 27, 1935.

[10] Fansler, W. A.: Use of Electrocoagulation in Treatment of Rectal Carcinoma. Journal Lancet., 55:495-498, Aug. 1, 1935.

undisturbed for at least four days, if fluids are withheld by mouth. Just as the preoperative preparation was carried out deliberately, so there is no hurry about giving fluids and food by mouth postoperatively. If the patient's condition is such that nourishment must be given, intravenous dextrose solution will supply it. Chewing gum and slices of lemon help prevent undue dryness of the mouth, and possibly safeguard against parotitis. Morphine is indispensable to supply rest. The chief point to be made is to postpone bowel action and fecal soiling as long as possible. Spinal anesthesia minimizes shock. Collapse symptoms call for transfusion. Transfusion is a life-saving measure if done early, on slight indications, but is wasted effort if deferred until dissolution is inevitable.

SUMMARY

1. Proctoscopic examination is indicated for slight symptoms. Only in this manner can early diagnosis of curable lesions be made. The earlier the diagnosis, the less complicated the lesion, the higher the percentage of cures, and the lower the mortality rate.

2. A prolonged period of preoperative preparation is essential, during which the colon is emptied, the fluid reservoirs of the body are filled, and the glycogen reserve is improved. Peritoneal immunization can be accomplished by intraperitoneal vaccine. This offers protection against unforeseen accidents with fecal soiling of the peritoneum. Two cases are cited to prove the effectiveness of such local immunization.

3. The operative procedure must be adapted to each case, and should be as simple as possible. An extensive abdominoperineal resection must be done in certain high lesions, but it is inadvisable to apply this method to low rectal lesions which can be eradicated by posterior resection. The mortality rate rises with the technical difficulty of the operation.

Destruction of inoperable or incurable rectal lesions by repeated electrocoagulation may replace palliative colostomy.

4. Bowel action and consequent fecal soiling should be postponed as long as possible after the operation. This is accomplished by giving nothing by mouth for two to four days while maintaining an adequate parenteral fluid intake. Morphine is indispensable.

Early transfusion may be life saving; late transfusion is useless.

ERADICATION OF HERNIA BY INJECTION*

Roy C. McDaniel, M.D.
PORTLAND, ORE.

I often wonder whether we are mindful of what has been accomplished by our predecessors, and if we sometimes pause at the historical mile posts established by those who have labored so diligently and accomplished so much under difficulties of which we have no conception. Hernia is undoubtedly as old as the history of man, and while no records are extant, it was probably treated by primitive man with the simple measures at hand, guided by his instinct.

The treatment of indirect and direct inguinal hernia herein described is quite different in procedure from the first paper I wrote in 1914 on the treatment of femoral hernia. In reviewing the literature it was discovered that Valpeau[1], in 1835, injected hernias with iodine. This method acquired very little popularity until 1927, when Mestra[2] of France and Mayer[3] of Detroit reported their many years of experience with the injection treatment of hernia.

As a result of experimental work done in this field by Hall in 1929, he concluded that, following the injection of a sclerosing solution, there was a "vigorous proliferation of endothelial and connective tissue cells" forming a foreign body granuloma. He also mentioned that after three or four injections, sufficient plastic tissue was produced to obstruct the orifice of the hernial sac.

In the past thirty years Mayer claims 98 per cent cures in more than 2,000 cases of hernia treated, and in this series he included umbilical, femoral and inguinal hernias. Wolfe[4] of Brooklyn, New York, reported 86 per cent satisfactory results on a small series of 64 cases treated with the injection method, reported 62 cures.

Wolfe also reported that the injection of a sclerosing solution directly into the cord of experimental animals did not produce obliteration of the vas deferens.

Rice,[5] instructor in the Surgical Department of University of Minnesota Medical School, reports

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*Read before the Sixty-first Annual Meeting of Oregon State Medical Society, Gearhart, Ore., Sept. 19-21, 1935.

[1] Velpeau, M.: The Anatomy and Surgical Treatment of Hernia, p. 272. D. Appleton & Co., 1881.

[2] Mestra, P.: Spanish Edition (abs.) J. A. M. A., 18. 186, 1927.

[3] Mayer, I.: Hernia Treated by Subcutaneous Injections; Report of 30 Years Experience with 15 Illustrative Case Reports; M. J. & Rec., 131:90-92, Jan. 15, 1930; Corrective Treatment of Hernia; Observation from 30 Years of Experience in Injection Method. M. J. & Rec., 135:275-278, March 16, 1932.

[4] Wolfe, R.: Injection Treatment of Hernia. M. J. & Rec., 133:242-246, March 4, 1931.

[5] Rice, C. O.: Injection Treatment of Hernia. Minnesota Med., 17:248-252, May, 1934.

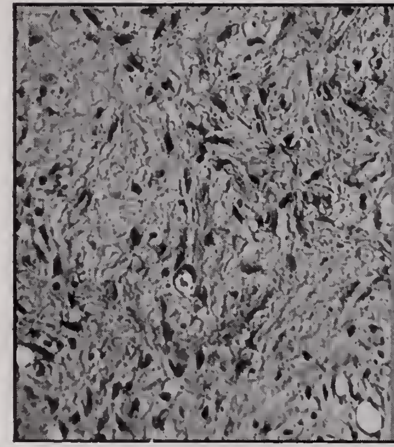

Fig. 1.

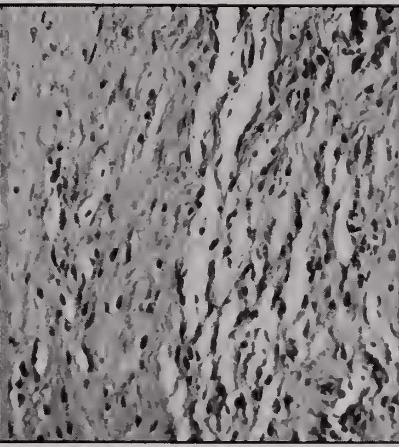

Fig. 2.

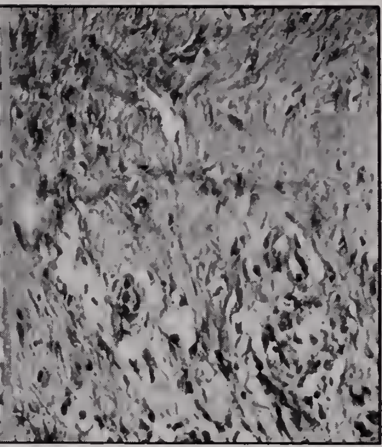

Fig. 3.

Fig. 1. Seven days after injection. Note young fibroblasts and newly formed blood vessels. Round cells detected but only occasional polymorphonuclear can be seen. Magnification 200 x.

Fig. 2. Fourteen days after injection. Small slender nuclei can be seen with young fibrous tissue, which fibers are moderately abundant. No polymorphonuclear can be seen, but there is an occasional round cell. Magnification 200 x.

Fig. 3. Forty-two days after injection. There is an abundance of fibrous tissue and said fibers are wavy. Can note in this section that on the right side the proliferation of fibrous tissue appears to have progressed more than on the left side. Magnification 200 x.

that Bratrud[6] and McKinney have used this method for the past three and a half years at the Minnesota General Hospital and in their private practice with excellent results. In addition, experimental work performed by them showed that after seven weekly injections into the inguinal region of a dog, very strong fibrous tissue had been produced at the site of the injection, and there was no indication of hemorrhage, necrosis or leucocytic exudation. The newly formed fibrous connective tissue appeared and is proven to penetrate and to be firmly attached to the adjoining muscle.

From the reports of reputable men who have obtained satisfactory results with this method, and just as we have learned to recognize the value of the injection treatment of varicose veins and hemorrhoids, we must concede that there is merit in this procedure which is verified from histologic slides in experimental work done, also from the human tissue. Through the courtesy of Dr. Rice I have obtained slides demonstrating the above outlined changes (figs. 1, 2, 3).

A hernia is produced by a defect in the abdominal wall which allows the contents to protrude. It is the defect, not the contents of the sac, that is the important factor. With injection we seek to reinforce this defect by inducing a seroplastic exudation with a marked subsequent proliferation of connective tissue and endothelial cells, thereby narrowing the opening and so strengthening the tissues that the hernial contents cannot protrude.

To eradicate an indirect inguinal hernia it must be kept in mind that the internal inguinal ring, as well as the whole canal, is to be made narrower, and to accomplish this it must be contracted from its upper or ventral surface, which surface is most adjacent to the sac. The external abdominal ring is made narrower from above downward; therefore, we attack the cure of indirect hernia from above.

No doubt those who have employed this method for some time obtain better results than the novice, but the skill required for its accomplishment is not beyond those who are willing to devote conscientious hours learning the technic. I do not wish to convey that this method is entirely without danger any more than the operative treatment of hernia is fool-proof.

This method is most applicable to indirect and direct inguinal hernias (which average about 90 per cent of all hernias), but in the hands of an experienced operator it is also applicable to femoral and umbilical hernia, in which complete reduction is obtainable.

The anatomy of indirect and direct inguinal hernia must be thoroughly understood, and to carry out the technic the topographic landmarks must be remembered, which are the anterior superior spine of the ilium and the pubic tubercle. Halfway between these anatomic landmarks is the internal abdominal ring and extending from this ring to the external abdominal ring is the inguinal canal. The inferior epigastric artery is directly medial to the canal. This canal measures an average of three centimeters long in a normal individual. It is important to diagnose indirect hernias, as all do not extend into the scrotum; the canal may be shortened and the rings so much enlarged as to make it appear that both rings lie almost directly over each other, resembling a direct hernia.

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[6] Bratrud, A. F.: Ambulant Treatment of Hernia. Journal-Lancet, 53:673-674, Dec. 15, 1933. Ambulant Treatment of Hernia. Journal-Lancet, 54:337-341, June 15, 1934.

In conjunction with this treatment, it is most important that a well fitting truss be worn day and night and that it hold the hernia completely and continuously reduced. When a truss is properly fitted, the patient can engage in almost any form of exercise or labor he desires, but if improperly fitted it causes the contents of the hernia to press outward against the fascia of the external oblique and results in thinning the fascia, as well as enlarging the defect in the transversalis fascia. Therefore, frequent inspection to see that the hernia is retained by constant firm and continuous pressure is most important. If this cannot be done, injections should not be given. Full cooperation on the part of the patient to withstand certain discomforts while wearing a truss is absolutely essential.

The Smithsonian truss has been found most applicable for indirect inguinal hernia. By the degree of pressure through the spring mechanism of the truss and with variations in the size of the pad, most hernias can be held reduced (which has been accomplished in the cases I have treated). In my first patient there was a slight inflammatory reaction beneath the pad of the truss which was applied following injection.

I now insist that the truss be worn four or five days before commencement of treatment, so that the patient will accustom himself to the pressure. Through experience it has been found that, if the patient wears the truss eight to twelve weeks following the last injection, we get firmer connective tissue in plantation at the site of injection; it has also been proven that wearing the truss does not thin by pressure but causes increased growth of the connective tissue. At the end of the second month after treatment, the patient is allowed to remove the truss at night while in bed but is instructed to replace it before rising.

INJECTION

With the patient lying on his back and the hernia reduced, the first injection is made at the site of the internal inguinal ring which is located by anatomic landmarks as described previously. It is quite important to have the patient relaxed, explaining to him that he will experience a slight pain as of the prick of a pin. A 5 cc. syringe and a 28 gage 1½ to 2½ inch needle is used.

After locating the internal abdominal ring and under surgical technic, the injection is made as follows. The needle is passed through the skin and fascia of the external oblique muscle with the point directed obliquely downward (caudalward). This is done to avoid any possibility of projecting the needle into the peritoneal cavity, as might be done if it were at a right angle to the surface or directed from below upward. In passing the needle through the fascia of the external oblique muscle, there is a sudden lack of resistance as though passing the needle through a heavy sheet of paper. When this sensation of lost resistance is noticed, the position of the needle point is below the fascia of the external oblique muscle and determines the location where the solution is to be placed.

Injections along the inguinal canal to the external abdominal ring vary from one-half to one centimeter apart and are given every four to seven days, according to any reaction. The number of injections varies. In one patient, I believe three injections seemed to obstruct the canal, though it usually requires from seven to twelve, but injections should be given until there is a plastic exudate which becomes indurated and hard and fills the inguinal canal, at which time there is no impulse present on coughing. It is not advisable to have the patient strain or cough during the treatment, or until you are fairly certain that the hernia is obliterated.

During the injection there is usually experienced a moderate burning sensation which subsides in from one to two minutes; the patient is to be kept in a reclining position for ten minutes, then the truss is reapplied while he is still in that position. I am not using alcohol, carbolic acid and oil of thuja or tannic acid, but "sylasol," a product by Searle and Company. This has eliminated the burning sensation without the use of novocaine. In assisting the patient to a sitting posture I place my hand to the back of his neck, telling him to stiffen the erect spine muscles, so that he will refrain from putting any strain on the abdominal muscles, which might cause protrusion of the sac.

In forty-seven injections given, I had one case where I evidently injected directly into the internal abdominal ring and possibly the peritoneal cavity. The patient elicited no unusual sensation, but upon gaining a standing position he had acute gastric pain extending across the pelvis on the level at the site of injection, with shock and marked diaphoresis. This was a very fat abdomen and took a needle 7 cm. in length to reach the canal; however, with the following injections given there was no systemic reaction.

FOLLOW-UP TREATMENT

The follow-up treatment is important. I have the patient return for examination in three months, again in six, and again in twelve months, which gives us a record of twenty-one months. Should there be any evidence of symptoms noticed in the intervening time, the patient is instructed to report for examination. With this follow-up method we hope to have records of the result of this treatment that will be authentic. Bartrud reports that in 406 hernias treated, the recurrence did not amount to 4 per cent in 387 patients.

ECONOMIC ADVANTAGES

The advantage of this treatment is that there is no hospitalization required, the patient remaining ambulatory, the time specified for treatment made to his convenience, and losing no time from his work. I am convinced that this treatment of hernia should be very attractive, particularly to insurance companies and employers. In this period of economic stress, the private patient often finds it difficult to finance the operative treatment, with its hospitalization cost and loss of time from work.

Another field which has great possibilties lies in the treatment of individuals who cannot obtain or retain employment because of a potential hernia, which we recognize as a bulging along the canal and anatomically is a weakened condition of the fascia. A series of injections should reinforce this weakened fascia and prevent a high percentage of fully developed hernias.

In subsequent examination of operative hernias which show evidence of recurrence, the injection method should prove very valuable in preventing such recurrence.

It has been estimated that the saving in industrial hernias alone would amount to $10,000,000 annually if this method were used routinely.

CONTRAINDICATIONS

Listed among the contraindications for this treatment are cancer or any condition producing ascites, irreducibility or inability to maintain reduction with a truss, incarceration of the contents within the sac, varicocele, hemophilia, undescended testicle, hyperthyroidism, diabetes, tuberculosis or syphilis.

SUMMARY

1. Patients with hernia who have a high operative risk or those who decline operation need not be denied treatment, as in the hands of an experienced operator the described treatment is as efficacious as surgical treatment.

2. The knowledge of a proper fitting truss is essential.

3. Reducibility and maintenance must be accomplished.

4. Complications, as edema of the scrotum, orchitis, are practically nil, and no case has been reported of sterility following this treatment.

5. This treatment brings individuals who are suffering with hernia into the hands of physicians who know the pathology, anatomy, symptoms and diagnosis of hernia, and removes them from those who attempt to treat hernia mechanically.

6. I am convinced that the medical profession will recognize this type of treatment and give it its proper place in the therapy for those who are suffering from rupture.

SIGNIFICANCE OF GASTROINTESTINAL HEMORRHAGE*

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Hemorrhage of any marked degree from the gastrointestinal tract manifests itself by vomiting of blood or by passing of blood by rectum, or by both. Visible hemorrhage of any type usually causes a great deal of anxiety on the part of the patient who usually gives a very vivid picture of it to the doctor and often on this evidence alone he is able to formulate a fairly accurate diagnosis. Particular attention should be paid to the amount of blood, the character, whether mixed with food or bowel content, the duration of the bleeding and the previous history. It is also well to bear in mind the law of averages as about 77 per cent of severe hematemesis are due to peptic ulcer, according to ten years statistics from Guy's Hospital.[1]

Hemorrhages from the upper part of the gastrointestinal tract, down to and involving the duodenum, usually manifest themselves by the spitting up or vomiting of blood. Bleeding occurring in the rectum or colon is usually manifested by bright red blood, while blood from the small intestines, stomach and esophagus, when passed by rectum, is dark or of a tarry-like consistency, due to the action of the digestive juices upon it. In a few cases it is impossible to discover the source of bleeding even at operation or autopsy, but most cases have a definite trend of symptoms together with the character of the blood which leads one to the correct diagnosis by methods of deduction.

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* Read before the Sixty-first Annual Meeting of Oregon State Medical Society, Gearhart, Ore., Sept. 19-21, 1935.

[1] Burger, G. and Hartfall, S. J.: Hematemesis in Peptic Ulcer. Guy's Hosp. Rep., 84:197-209, April, 1934.

The character of the bleeding will depend upon the lesion of the vessel or vessels involved. Where there is a rupture of a large esophageal vein, an ulcer eroding a large vessel, or an aneurysm into the esophagus, the amount of blood will be large and fairly bright red with a few soft clots resembling pieces of fresh liver. In carcinoma or chronic gastritis the blood will usually be dark colored like coffee, and many small clots simulating coffee grounds will be mixed throughout it, if the blood has been acted upon by the stomach juices.

I. Esophageal bleeding.
  1. Varices.
  2. Carcinoma.
  3. Traumatic.
    a. Following chemical burns.
    b. Trauma to a diverticulum.
    c. Rupture of aneurysm into esophagus.
  4. Peptic ulcer of esophagus (Jackson[2]).

Esophageal bleeding occurs most frequently following a ruptured varix in conjunction with cirrhosis of the liver, splenic enlargements or chronic cardiac affections; less frequently from cancer, peptic ulcer and trauma.

II. Stomach bleeding.
  1. Ulcer.
  2. Carcinoma.
  3. Dilated gastric veins.
    a. Chronic gastritis.
    b. Cirrhosis of liver.
    c. Splenic anemia.
  4. Acute inflamed gastric mucosa in acute gastritis.
  5. Following chemical burns, e.g., phosphorus and carbolic acid.
  6. Polypi, benign tumors and gumma.
  7. Acute infectious diseases such as smallpox and severe malaria.

In formulating a mental picture of stomach bleeding we may think of it having two main characteristics; first, the bright red blood with freshly formed clots occurring in ulcer bleeding; second, the dark liquid blood mixed with stomach content and containing coffee grounds appearing material, being more significant of carcinoma. In the late stages of carcinoma the bleeding may be massive and the patient succumb from a hemorrhage. Small amounts of bright red blood mixed with mucus and food are characteristic of acute gastritis, while in chronic gastritis the blood may have the characteristic appearance of having the digestive fluids acting upon it. Polyposis and other benign tumors seldom give massive hemorrhages but capillary bleeding is frequent in these conditions.

III. Duodenal bleeding.
  1. Ulcer (responsible for most duodenal hemorrhages).
  2. Duodenitis.
  3. Polypi.
  4. Diverticula.
  5. Carcinoma.
  6. Acute and chronic pancreatitis.
  7. Acute and chronic cholecystitis.
  8. Carcinoma organs surrounding the duodenum.

It is estimated by Ochsner and Wilbur[3] that 20 per cent of ulcers of the duodenum bleed at some time, while Allen and Bennedict[4] estimate that one-third of their ulcer cases had gross bleeding. Hemorrhage from the duodenum usually manifests itself by vomiting of fairly bright red blood or blood slightly discolored, and by the passing of ink-like liquid or tarry stools one to two hours later. Ulcer is practically always the cause of massive hemorrhage. The amount is usually large enough to produce fairly marked symptoms. Of the malignancies, carcinoma of the ampulla of Vater is the most common.

IV. Jejunal and ileum bleeding.
  1. Polypi.
  2. Gastrojejunal ulcers.
  3. Ulcerations, e.g., typhoid.
  4. Carcinoma.
  5. Diverticula.
  6. Uncinariasis.

Hemorrhage from this part of the intestinal tract is rather uncommon. When typhoid was prevalent they occurred very often. It is the rule for polypi and carcinoma to cause obstruction rather than hemorrhage. After gastroenterostomies have been performed, hemorrhage from a gastrojejunal ulcer very commonly occurs.

V. Colon bleeding.
  1. Diverticula.
  2. Carcinoma.
  3. Infectious processes.
    a. Dysenteries.
    b. Mucous colitis.
    c. Occasionally streptococcal infections.
    d. Tuberculosis.
    e. Traumatic conditions.
  4. Traumatic conditions.
    a. Volvulus.
  5. Melena neonatorum.
  6. Arteriosclerosis and hypertension.

Diverticula are probably the most common cause of hemorrhage from the colon. Here also the rule for carcinoma is to obstruct rather than bleed and when bleeding does occur it is only slight. Often very large hemorrhages occur in cases of arteriosclerosis and hypertension. Bleeding in the infectious processes, e.g., in amebic dysentery and mucous colitis is usually small amounts at a time.

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[2] Jackson, C.: Peptic Ulcer of Esophagus. J. A. M. A., 92:369-372, Feb. 2, 1929.

[3] Ochsner, H. C. and Wilbur, D. L.: Malignant Lesions Involving the Duodenum as a Causative Factor in Gastro-Intestinal Hemorrhage. Proc. Staff Meet. Mayo Clinic, 9:776-780, Dec. 19, 1934.

[4] Allen, A. W. and Bennedict, E. B.: Acute Massive Hemorrhage from Duodenal Ulcer. Ann. Surg., 98:736-749, Oct., 1933.

VI. Rectal bleeding.
  1. Hemorrhoids.
  2. Carcinoma.
  3. Polypi.
  4. Papilloma.
  5. Arteriosclerosis and hypertension.

Bleeding hemorrhoids are very common. Sometimes a large amount of blood is passed at one time or the patient may become very much weakened by long continued hemorrhages of small quantities. Carcinoma bleeds only small amounts at first, as a rule, but in the later stages very large hemorrhages may occur. Polypi are occasionally found and frequently bleed. Rectal bleeding in arteriosclerosis and hypertensive cases is from a hemorrhoidal vein or dilated veins higher up in the rectum.

In summing up the diagnosis too much emphasis cannot be laid upon the history and character of the hemorrhage. Even the roentgen findings may be misleading, e.g., this patient showing a fairly characteristic picture of an advanced carcinoma of the stomach.

This man was forty-five years of age and had been treated for peptic ulcer two years before. He was unable to eat but small amounts of food and had continual distress after eating. Two weeks prior to the vomiting of large amount of bright red blood a fluoroscopic study was made with findings as noted in the illustration. The diagnosis by several men was extensive carcinoma of the stomach. At the autopsy a large perforating ulcer was found.

In this case, if the character of the bleeding had been more carefully considered and the patient given the benefit of surgery, the ulcer would have been discovered.

Too much stress cannot be laid on condemning of roentgen studies with barium immediately following gastrointestinal hemorrhage. Such studies not only often fail to disclose the source of the bleeding but tend to promote more hemorrhage. A period of from two to four weeks should elapse before this procedure is instigated.

In the immediate treatment of gastrointestinal hemorrhage certain definite rules should be followed:

1. Absolute rest in bed.

2. Morphine.

3. Transfusion. Serums or coagulants may be tried if transfusion is not possible. The injecting of 20 to 40 cc. of whole blood intramuscularly may be of value.

4. Nothing by mouth for twenty-four to forty-eight hours.

5. Fifty per cent glucose by vein and after twenty-four hours normal saline solution by hypodermochysis. After forty-eight hours 500 cc. of 10 per cent glucose by vein and repeated every four hours.

6. If bleeding continues in spite of transfusions, and there is no tumor mass, surgery should be resorted to during or immediately following a transfusion.

7. Rectal bleeding may be treated locally.

8. Operation is indicated under certain conditions, e.g., in peptic ulcer where there are repeated hemorrhages that cannot be controlled otherwise. Allen and Bennedict advise that operation should be done after second bleeding in peptic ulcer. The chances for spontaneous cessation become less with each successive attack. Occasionally esophageal veins may be operated on with success. Usually bleeding gastrojejunal ulcer must be operated upon. Carcinoma of the intestines and colon should always be given the benefit of surgery unless there is some unusual contraindication.

SUMMARY

Statistics by Moore,[5] Fowler and Hurevitz[6] have proven that in the majority of cases of massive hemorrhage immediate medical treatment offers the best prognosis. When the hemorrhage subsides, conservative treatment may be carried out until roentgen studies may be made, and the future treatment, whether medical or surgical, can then be carried out in the quiescent stage.

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[5] Moore, G. A.: Bleeding Gastric Ulcer. New England J. Med., 212:149-152, Jan. 24, 1935.

[6] Fowler, W. M. and Hurevitz, H. M.: Bleeding Peptic Ulcer. J. Iowa M. Soc., 25:115-118, March, 1935.

Teratoid Tumors of the Testis. Archie L. Dean, Jr., New York (*Journal A. M. A.*, Dec. 14, 1935), studied clinically 292 patients with testicular teratomas. Compared with all admissions to the Memorial Hospital between 1917 and 1929, teratoma testis comprised 3.39 per cent of all tumors of the genitourinary system, 2.09 per cent of all malignant tumors in both sexes. The patients varied in ages between 1 year and 70. The average age was 31.87 years when the first symptom was noticed and 33.5 years at the time of admission to the hospital. The right testis was involved in 58.2 per cent and the left testis in 47.6 per cent. This difference could be accounted for by the greater frequency of undescended testes on the right side. A frequency of 14.28 per cent of the tumors was noted in undescended testes, which substantiates the belief that misplaced testes are especially liable to malignant changes. Positive signs of pulmonary tuberculosis were demonstrated in fewer than 10 per cent of all patients. Operations for hernia had been performed on 12 per cent before testicular enlargement was noticed. Primary tumors usually grow steadily and metastisize relatively early through lymphatics and veins. Metastases grow rapidly and spread widely. The average time of survival of 114 patients who died of teratoma was twenty-four months from the onset of the first symptom. The initial symptom of 78 per cent of the patients was a painless swelling of one testis. Symptoms caused by metastases are more clear cut and urgent. Of thirty-nine patients seen within three months of the first symptom, 67 per cent had metastases. Every patient with a testicular swelling should have a thorough examination of the entire body. The Aschheim-Zondek test is of considerable diagnostic and prognostic value. The microscopic picture of radiosensitive teratomas after irradiation is characterized by necrosis, hemorrhage and hyaline degeneration, probably followed by cicatrization.

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EDITORIAL

NEW YEAR OPTIMISM

Having passed through one of the most distressing periods of depression in the history of our nation, accompanied by wide spread pessimism as to the future, it is heartening to note an increasing spirit of optimism reported in various parts of the country. The apparent improvement in business affairs will necessarily be reflected on the outlook for practice of medicine.

Never during the existence of our nation has there been such a menace against the stability and established customs of medical practice as has prevailed during recent years. Following the publication of the report of the Committee on Costs of Medical Care, which was accepted by many as an authentic statement of facts and a trustworthy suggestion as to future methods of medical practice, it seemed as if established medicine had encountered a disturbing threat as to its very existence. As time has gone on, confidence in this report has been visibly shaken in all parts of the country. At the same time have arisen numerous plans to regiment practitioners and to control the care of the sick through lay organizations and lay leadership. One satisfactory result of these procedures has been the widespread dissemination of information concerning the actual economic status of the medical profession and a vivid portrayal of what it has constantly accomplished without compensation for promotion of public health and welfare of the people. This has particularly been demonstrated in the high school discussions concerning the adoption of state medicine which at first were viewed with much trepidation. The information presented to controvert this procedure and the widespread enlightenment extended to the public regarding the disappointment and failure of these measures in European countries have done much to weaken the efforts of the propagandist for various forms of state medical care.

However one may view with complacence the failure to establish in a precipitate manner the state control of medicine in any part of the country, one cannot blind himself to the fact that this menace still threatens and requires as much active opposition as ever in the way of public information as to its unsatisfactory practice in other countries and its prospective lack of value in our own land. All realize that the only effectual methods of combatting the efforts to establish lay control over medical practice must come through legislative efforts. Our legislators have control of the situation as regards the establishment of any measures legally to direct and control medical practice. In order to direct such legislation along intelligent channels it will be necessary to elect medical men for both branches of our respective legislatures. This fact is universally acknowledged. In our county bulletins and state publications constant emphasis is laid on this declaration.

The effective leadership of medical men and women in every community is universally recognized. Their influence in establishing measures for the promotion of public health and welfare has been recently demonstrated in Oregon, where the efforts to repeal the basic science law were thwarted through the activities of medical practitioners, and in Idaho the recent establishment of adequate public health leadership was the direct result of persistent agitation and efforts on the part of medical men. Thus the immediate problem to which the medical profession of our states must direct their efforts is to secure the consent of suitable physicians to serve as candidates for primary nominations and then to work assiduously and effectively for their election. Notwithstanding the popularity of innuendos and reflections against scientific medicine of the present day, faithful and enthusiastic investigators continue to reveal new discoveries to check disease and promote human welfare. All existing conditions considered, there is reason for medical practitioners to view the coming year with a spirit of optimism.

WASHINGTON MEDICAL SERVICE BUREAUS

In order to meet the wide spread agitation for state medical legislation, a variety of plans have been developed in many of the states to provide medical service for low income wage earners. Some of these have been proposed quite recently, while others have been in use a sufficient length of time to demonstrate their practicability. The Washington bureau plan has been adopted by twelve county medical societies, with about eight hundred members, including all the larger cities of the state, in some of which it has been employed for five years or more, a sufficient length of time to determine its usefulness. No county society instituting this system has relinquished it in favor of any other plan. The reasons for establishing this contract service were twofold. First, was the desire to provide a system that would extend to the low wage earner adequate care in case of sickness. The second purpose was to counteract the rapidly expanding contract system conducted by individuals or groups of doctors as well as organizations maintained and executed by laymen, some of which were operated from offices in other states, which threatened monopoly of this class of patients. It was determined that the only way to meet this situation was for the county society itself to engage in this form of contract practice, offering whatever benefits obtainable from it to all members who desired to participate instead of concentrating them in the hands of a few.

In brief, the system is based on contracts between a county society or its subsidiary corporation and the employers who thus protect their groups of employees. It does not cover practice with individuals. There are the usual exclusions of venereal diseases, tuberculosis, cancer and chronic diseases, with limitations as to period of disability and other features which are modified by local conditions. The employee pays a monthly fee, commonly from $1.25 to $1.75 each, in return for which he receives medical attention together with hospital, nursing care and drugs, and has the selection of medical attendant from members of the bureau. The success of this system in different counties depends upon the extent to which the society members participate in the bureau practice. The ideal situation exists in Yakima County society which established its bureau more than five years ago, where all the members belong to it and there is a complete control of the situation. The largest bureau service is naturally in King County, where out of a society membership of about five hundred and fifty, four hundred belong to the bureau. This service includes eight hundred contracts, covering twenty-five thousand employees, who pay into the fund $1.25 to $1.50 per month, service being limited to those with maximum incomes of $1,800. A reserve fund is being accumulated for emergency protection that is approaching $40,000, which sum will be the limit for anticipated needs for the present. Having been in operation for nearly three years, the bureau has become firmly established.

Each county has its own fee schedule which in a general way approximates that of the Industrial Insurance Commission. For his services the physician receives varying sums on the bill rendered, at present extending from 55c to $1.00 per unit, the latter being the ultimate expectation. The doctor's fee has increased in proportion to extension of the service and its acceptance by society members. Yakima society has already attained the maximum fee payment.

The relation of the State Medical Service Bureau to the Department of Public Welfare is indicative of the confidence which it has inspired. One function of the Department is care of dependent unemployables. When the director consulted officials of Washington State Medical Association for advice concerning the medical administration, he was referred to the officials of the State Bureau. On his request they offered a set of rules and regulations which was accepted and adopted without alteration or addition. This places exclusively under direction of the medical profession the care of these unemployable state beneficiaries, the necessary funds for administration being placed in the hands of the state bureau officials. They will allocate available sums to the county medical bureaus where they exist, the care of these patients elsewhere being under the supervision of the county medical societies. The confidence thus displayed in the bureau service is gratifying.

The objections to this system come from two sources. First, are physicians who refuse to participate on account of the low fees. Undoubtedly one is irked to be confronted with the treatment of a patient under the medical service bureau who had previously paid customary fees. It is true that the considerably larger fees of the past are not collectible under this system. To offset this is the fact that payment for service is returned monthly, including patients who might otherwise be on the charity list, as well as others of doubtful credibility, from whom a reasonable fee is assured. The second class of objectors comprises the men engaged in individual contract work who disapprove of this form of practice being distributed among other members of the society desiring to participate in it. The only expectation of permanent establishment of this system involves the absorption of all available contracts by the county bureau and their abandonment by individual or group practitioners as is the case in King County Society, where none of the members are now engaged in individual contract work. Although no one can be so venturesome as to predict this or any other method of caring for low wage earners is perfect or free from criticism, it is believed by a large proportion of Washington practitioners that this system is working satisfactorily and, if the profession as a body supports it, it will be an effective protection against the induction of state medicine which is constantly in prospect.

CONGRATULATIONS TO IDAHO

For a number of years Idaho has held the unenviable position of being the only state of the Union without a medical man at the head of its Department of Health. Composed of laymen, this department has supervised the health of the state, frequently ignoring suggestions of competent medical advisors. Repeatedly have bills been introduced into the legislature to appoint the needed medical official and several times the measure has been adopted by one branch, to be rejected by the other. Always some sinister forces have succeeded in defeating this project, whose only purpose has been preservation of the health of people of the state.

Through the years it has been disheartening to medical men of the state to have their efforts to promote preventive medicine often defeated by indifference and politics, and always discounted by ignorance and prejudice fostered by cults. It is, therefore, altogether encouraging to learn that the persistent campaign of Idaho State Medical Association has resulted in installation into the department of public welfare of Dr. J. D. Dunshee, recently connected with California Department of Health, a competent, full time physician who is a public health specialist. Public opinion in Idaho became sufficiently aroused in response to the efforts of its doctors to give the state administration the needed impetus to do what the legislature failed to require it to do by statute, but which it at all times had the power to do. It would seem that a possible factor in the decision to act was a considerable epidemic of typhoid fever in the Snake River valley as had been prophesied by the proponents of preventive medicine.

Public opinion still is the vital force in public affairs, if and when aroused. In matters concerning public health it is the plain duty of the medical profession to create and mould public opinion. It is a duty the profession must never shirk, no matter how paramount may be the appeal of other phases of the field, nor how distasteful the necessity of the publicity required. It is, we repeat, indeed encouraging to be able to call attention to the success of the doctors of Idaho in their effort to discharge their duty to the people of the state. On such accomplishments are built the hope and inspiration needed to launch further efforts.

MEDICAL NOTES

American Association for the Study of Goiter offers the annual Van Meter Prize Award of $300 and two honorable mentions for the best essay submitted on the goiter problem. Award will be made at the next annual meeting of the association in Chicago, June 8-10. Manuscripts must not exceed three hundred words in length and be submitted to the Corresponding Secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pa., not later than March 1, 1936. Further information may be obtained from him.

Congress of Physical Medicine. The Sixth International Congress of Physical Medicine will be held in London, May 12-16, being the first occasion for the meeting being held in Great Britain. The high standing and achievement of treatment by physical methods in Great Britain and Ireland are thus recognized. Lord Horder is the president of the British section of the Congress. Those expecting to attend the Congress are requested to communicate with Hon. Sec. Dr. Albert Eidinow, 4 Upper Wimpole St., London, W. 1.

American Board of Ophthalmology will hold 1936 examinations at Kansas City May 11, at time of meeting of American Medical Association and at New York City in October with the meeting of American Academy. Applications and case reports must be filed at least sixty days before date of examination. For further information address Dr. Thomas D. Allen, 122 South Michigan Ave., Chicago., Ill.

OREGON

Hospital Closed. Hot Lake Sanitarium, which has been a well known private hospital for many years under supervision of the Phy family, has been permanently closed. Since the death of Dr. Phy it has been the subject of much litigation. During the past two years it has been operated under lay supervision, subject to considerable controversy. For many years it was a profitable and successfully conducted institution.

G. Earl Low of Grants Pass, who has practiced in that city for a number of years, has retired and gone to Portland for treatment on account of illness. His practice has been taken by E. G. Everett of Lakeview, a graduate of University of Oregon Medical School.

WASHINGTON

Hospital Contracts Awarded. A contract has been awarded for construction of the new women's ward building at Eastern State Hospital at Medical Lake. The lowest successful bid was for $112,970. A contract has also been awarded for construction of a ward building at Western State Hospital at Steilacoom. This will cost $147,557.

New Hospital Proposed. A new site has been purchased on Market Street in the Ballard district of Seattle, 20x138 feet in size. The new Ballard General Hospital will be erected at this location. It will be a three story structure with fifty beds. At present the hospital occupies a part of Ballard Eagles building which has become inadequate in size.

New Indian Hospital. A new government hospital has been completed and opened for service at the Indian Agency at Nespelem. Superintendent Poynton of the Indian Service at Washington was present at this occasion.

North Pacific Society of Internal Medicine held its semi-annual meeting at Medical Arts Building Auditorium, Tacoma, December 7. President George Anderson of Spokane presided. Nearly the whole membership of the society was present. Interesting papers were presented on subjects pertaining to internal medicine.

Seminar in Internal Medicine was held at Seattle General Hospital December 26-28. The guest speaker was Dr. William Dock, associate professor of medicine at Stanford University, who delivered three lectures a day presenting the latest information on several outstanding medical problems.

Death of Surgical Nurse. Miss Bertha Keast, superintendent of Arlington Hospital, died December 12. For a number of years she was superintendent of the Cobb Building Surgery, Seattle, being well and favorably known to the profession of that city. She had lived in Seattle for twenty-five years and at one time was in charge of a children's sanatorium.

Medical Author. W. M. Karshner, who practiced for many years in Puyallup and during recent years has been Professor of Pathology at University of Washington, has published a book entitled "Cruising the South Seas." Beside describing interesting incidents of travels and experiences, the book includes scientific facts pertaining to the natives and their customs, with their physical problems and diseases. This interesting volume reflects the attractive personality of the author.

Appointed to Custodial School. W. W. Brand, who has practiced in Prosser for the past fifteen years, has been appointed resident physician at the Custodial School at Medical Lake.

Carl B. Cone, who has recently served as resident physician at Clark County Hospital, has located for practice at Vancouver. After graduating from Medical Department of University of Nebraska, he served as interne in Good Samaritan Hospital of Portland.

Charles E. Taylor, for many years resident at Steilacoom and recently living in Tacoma, has located at Toppenish. He will be connected there with the medical department of the Indian service.

IDAHO

CCC Medical Conference. A conference of CCC camp surgeons was held at Pocatello, November 16. Those in attendance were physicians in charge of the CCC camps in that district of the state. Their discussions pertained primarily to the treatment of diseases connected with camp life.

Corney J. Klarren has located for practice at Moscow, where he will be associated with D. M. Loehr. He is a graduate of University of Iowa Medical School and served an internship at Tacoma General Hospital. Recently he has practiced at Winterset, Iowa.

Wedding. Orville F. Swindell of Boise and Miss Dagmar T. Knudsen of that city were married November 23.

OBITUARIES

Dr. Frederick Falk of Seattle, Wash., died suddenly November 28, while preparing for Thanksgiving dinner, of disease of the heart, aged 62 years. He was born in Vienna in 1873. He graduated from New York University and Bellevue Medical College in 1899. The same year he located for practice in Seattle, being one of the first Jewish physicians to practice in that city. For many years he engaged in general practice, but in recent years was an eye, ear, nose and throat specialist. During the World War he served over seas with Base Hospital No. 50, holding the rank of major when discharged. He was quiet and unassuming in his character with many friends and admirers.

Dr. Hubert L. Miller of Seattle died December 7, after prolonged illness, aged 53 years. He was born in Oroville, Calif., in 1882. He moved to Seattle with his parents in 1885. He received his medical degree from University of Pennsylvania in 1905. The same year he located for practice in Seattle. In 1911 he moved to McMurray, where he practiced until the outbreak of the World War. During the war he served as captain of United States Medical Corps, being stationed in Russia. After the war he continued service in the Army, being stationed in Europe, the Orient and Philippine Islands. On account of ill health he retired from Army service in 1925, making Seattle his home since that time.

Dr. Carl A. Hoffman of Seattle, Wash., died December 1 after a long illness, aged 63 years. He was born in Peoria, Ill., in 1872. He graduated from Creighton University School of Medicine in 1896. He located for practice in Seattle in 1899. He was a singer of note and for a time suspended medical practice while traveling with an opera company. He was a prominent member of the Elk's Lodge, of which he was past exalted ruler.

Dr. Thomas H. Runnalls of Orting, Wash., died at Tacoma, November 17, from pneumonia, aged 47 years. He was born in England in 1888, coming with his parents to Puyallup the same year. He graduated from University of Oregon Medical School in 1912. He had been located in Orting since that time. Four months before his death he took charge of a hospital at Carbonado.

REPORTS OF SOCIETY MEETINGS

OREGON

LANE COUNTY SOCIETY

Pres., C. E. Hunt; Secty., E. D. Furrer

A meeting of Lane County Medical Society was held at Osburn Hotel, Eugene, Dec. 20, with a banquet at 6:30. The paper of the evening was by Matthew C. Riddle of Portland on "The Anemias, Their Diagnosis and Treatment."

The following officers were elected: G. I. Hurley, President; E. L. Zimmerman, President-elect; D. C. Stanard, Vice-president; E. D. Furrer, Secretary, and P. J. Bartle, Censor, all of Eugene. Charles E. Hunt is the retiring President after a two year term.

The association voted to establish a medical library at the University Library in Eugene and will donate medical journals and medical books for this purpose. The University librarian extended this invitation to the society.

The Secretary reported the society in excellent financial condition with every member of the county society now a member of the state society with forty-seven active members, one honorary member and two life members.

MULTNOMAH COUNTY MEDICAL SOCIETY

Pres., T. Tharaldsen; Secty., W. F. Hollenbeck

Multnomah County Medical Society held its annual meeting at Benson Hotel, Portland, December 18.

Guest of the meeting was J. Tate Mason of Seattle, President-elect of the American Medical Association. He discussed socialized medicine as proposed by the federal administration, presenting cogent reasons for opposition to such action with practically the whole medical profession of the United States against it. A large attendance of the society members listened with much interest to the address, enthusiastically endorsing the views expressed by the speaker.

The following officers were elected for the ensuing year: President-elect, O. F. Akin; Vice-president, W. F. Hollenbeck, Secretary; J. C. Adams; Treasurer, A. G. Bettman. Banner R. Brooke is the president for the ensuing year.

O. R. Hess, who has practiced for some time at Florence, has moved to Myrtle Creek, where he will take over the practice and office equipment of Dr. Irvine.

NORTH PACIFIC SURGICAL ASSOCIATION

North Pacific Surgical Association held its annual meeting at Heathman Hotel, Portland, December 6-7. This organization includes surgeons of Oregon, Washington and British Columbia.

The program included three papers by Frederick A. Coller, Professor of Surgery, University of Michigan on "Dehydration and Water Balance in the Surgical Patient," "Fascial Planes in Relation to Infection" and "Ambrose Pare: The Man Who Brought Respectability to Surgery." Other papers were read by members of the association from different cities of the Northwest.

WASHINGTON

KING COUNTY MEDICAL SOCIETY

Pres., R. L. Zech; Secty., F. H. Douglass

A regular meeting of King County Medical Society was held in the auditorium, Medical-Dental Bldg., Seattle, Dec. 2, president R. L. Zech presiding. Minutes of last regular meeting were read and approved. Application for membership of H. L. Leavitt was read.

W. R. Jones read a paper, "A Low Cost Device for Giving Elliott Heat Treatment." Granting benefit from hot water treatment for pelvic inflammations, it is not financially profitable, owing to the $195 cost of the machine and the notorious financial irresponsibility of a large portion of patients treated. An apparatus was described consisting of a two gallon stone jar, rubber tubing and a heat bag consisting of an ordinary condom. The setup was explained, the cost of the whole apparatus being $6.95.

Roger Anderson discussed "Ambulatory Method of Treating Fractures of the Shaft of the Femur." He described a method permitting the patient to be dressed and crutch ambulatory within a few days. The two fragments are put under exact control by transfixion pins in each, which permits extension, reduction and immobilization. Permanent immobilization of the fracture is obtained by a cast from the ilium to the knee, leaving both hip and knee joints free for movement. This technic is applicable to all types of femur shaft fractures. It was discussed by D. G. Leavitt, E. W. Rawson, Walter Kelton, W. C. Kintner, H. D. Dudley, H. J. Davidson, all of whom had either made use of this method or were familiar with it and all commended it highly as being a notable improvement over any previous method of treating femoral fractures.

The following nominations were made for the ensuing year: President-elect, V. W. Spickard; Secretary-Treasurer, P. W. Willis, Jr., and M. S. Jared; Trustees: R. L. Zech, F. H. Douglass, G. R. Marshall, S. C. Standard; delegates to state association meeting, F. J. Clancy, Frederick Slyfield, A. J. Bowles, H. E. Nichols, J. M. Bowers, Thos. Morcom, C. W. Knudson, S. C. Standard, G. R. Marshall, H. J. Davidson, David Metheny, R. E. Seth, J. H. Mathews, C. E. Gray, F. T. Maxson, B. P. Mullen, B. T. King and R. H. Loe.

PIERCE COUNTY MEDICAL SOCIETY

Pres., J. R. Turner; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in Medical Arts Building, Tacoma, Dec. 10, with J. R. Turner, President, in the chair. The following scientific program was given:

A classical and exhaustive paper on "Bone Tumors" was read by B. D. Harrington of Tacoma General Hospital. With the aid of lantern slides, he demonstrated and described all of the different bone tumors, both benign and malignant. Discussion was by Drs. Whitacre and MacRae.

C. D. Hunter presented a paper on "Dislocation of Cervical Vertebrae" and described the technic of diagnosis and reduction. It was illustrated with lantern slides showing cases that had been reduced. Discussion was by Drs. Harrington and Herrmann.

Drs. Penney and Whitacre were called upon for short reports of their recent trip to Mexico City.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., O. R. Allen; Secty., E. J. Van Buskirk

Snohomish County Medical Society held its annual meeting December 12 at Golf and Country Club, Everett. There were guests present from Seattle, Tacoma and other cities.

The principal address of the evening was by Professor L. H. Ellis, instructor of political science at University of Washington. He gave an address on "United States Relations with Foreign Countries," he having been for a number of years connected with the diplomatic corps at Pekin, Guatemala and European countries.

O. R. Allen of Lake Stevens, newly elected president, presented a resume of the history of the Snohomish County Medical Society since its establishment in 1925.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly meeting of Walla Walla Valley Medical Society was held at Grand Hotel, Walla Walla, on Dec. 12, 1935. The meeting was preceded by a dinner with fifty-six physicians present from the three Northwest states, including W. O. Clark and C. C. White of Lewiston, Ida., Dr. Papenhagen of Orifino (who had driven 145 miles to attend the meeting); also Drs. Brennan, McBee and Cavanaugh of Pendleton, and McMurdo and Ashley from Heppner, Ore.

President Lyman presided and after dinner introduced the speaker, Richard B. Dillehunt, professor of surgery and dean of the medical school of University of Oregon. He delivered an outstanding and instructive address on "Low-back Pain and Sacroiliac Conditions." After an elementary anatomic description of the vertebrae and spinal canal, he gave his classification of causes of low-back pain as follows: (1) Static. Chronic static strain of the back with treatment consisting mainly of correction of posture, corsets, muscle training, etc. (2) Pain from visceral diseases as prostate, gallbladder, ptosis of the colon, diseases of the uterus, etc. (3) Neuropathic conditions as tabes dorsalis, central or peripheral nerve pain referred to the back, syringomyelia, charcot spine, etc. (4) Traumatis from fractures, dislocations, etc., as well as injuries to neucleus pulposus. (5) arthritis, spondylitis or hypertrophic osteoarthritis; as well as the Marie-Strümpell type of spondylitis. He described also the lipping of the edges of the vertebrae as probably being caused by a pulling loose of small pieces of periosteum by the anterior vertebral ligaments in cases of strains or sprains. (6) Congenital, as associated with spondylolisthesis, spina bifida occulta, etc. (7) Neoplastic conditions or tumors were not discussed, this being a separate subject.

Dr. Dillehunt demonstrated on one of the members Ober's sign which is positive in cases of sciatica. The lecture was followed by demonstration of lantern slides and roentgen films. F. C. Robinson of Walla Walla led a most instructive discussion followed by members of the society.

The next meeting will be held Jan. 9, with Ralph A. Fenton, professor of ear, nose and throat at medical school, University of Oregon, as the speaker. His topic will be "Nose, Ear and Throat Conditions from the General Practitioner's Viewpoint."

SOUTH SIDE MEDICAL SOCIETY

Pres., E. L. Berry; Secty., J. N. Davis

A regular meeting of South Side Medical Society was held at Twin Falls Nov. 29, preceded by dinner at Park Hotel.

The program consisted of a paper by Chas. B. Ward of Seattle, "Practical Points in Treatment of Cancer;" and paper by Paul G. Flothow of Seattle, "Recent Advances in Surgery of the Sympathetic Nervous System."

UPPER SNAKE RIVER MEDICAL SOCIETY

Pres., W. G. Sutherland; Secty., Parley Nelson

Upper Snake River Medical Society held its annual meeting at Rexburg Dec. 20. The following officers were elected for the ensuing year: President, W. L. Sutherland; Secretary-treasurer, Parley Nelson, both of Rexburg.

A resolution was passed directing the officers to request Idaho State Medical Association to revoke the society's charter and to permit it to join Pocatello society.

American College of Physicians will hold its Twentieth Annual Meeting at Book-Cadillac Hotel, Detroit, March 2-6. Pres. James A. Miller of New York will deliver an address on "The Changing Order of Medicine." About fifty eminent authorities will present papers at the general scientific sessions with clinics at the many Detroit hospitals.

STATE DEPARTMENTS

OREGON

NOTES OF OREGON COUNCIL

Portland, Ore., Dec. 16, 1935.

The December meeting of the Council of Oregon State Medical Society was held on December 4 and as usual at these meetings many matters of interest and importance to the membership were considered. In reciting them they may seem of little consequence, but when worked out and put into effect they are of importance.

It was voted that the subject of the benefits of organized medicine to the individual physician should be considered in lectures before undergraduate students of the medical school as is done in Ohio and other states. This matter will be taken up with the Dean who will see in his wisdom that the neophyte physician receives the required knowledge.

J. P. Brennan of Pendleton offered the suggestion that every councilor make it his duty to contact every nonmember in his district to the end that they may be enrolled in membership.

Letters from the Medical Society of New Jersey and from the A.M.A., on the present status of the pure foods and drugs legislation in Congress were read. The Tugwell Bill, which was perhaps the better bill, is too drastic to have a chance of passage, and it was therefore deemed advisable to modify it and it is now known as the Copeland Bill. This is an improvement over the present act and it is hoped that it may be enacted into a law in the near future.

The Executive Secretary, Mr. Clyde C. Foley, pointed out that the Society has more paid members than ever in its history, and that it has received more money for dues in the past year, even though they have been reduced temporarily twenty-five per cent. This indicates an increase of thirty-three per cent in the membership of the Society over the previous high. It was voted that the rebate of five dollars which has been in effect for the past two years be continued in 1936, thus making the dues of the Society fifteen dollars per year instead of twenty.

Miss Katherine Lenroot, the Regional Director of the Social Security Act, spoke before the Executive Committee of the Woman's Auxiliary and members of the Executive Committee of the Oregon State Medical Society. She stated that under the Act existing local medical facilities will be utilized in the care of the needy, coordinating these activities with the assistance of local advisory committees appointed by local medical societies. The maternal and child health service will be carried on through collaboration with the staff of the U. S. Public Health Service in coordination with the local boards of health and other health agencies. Specialized maternal and health service will be covered under public health nurses acting with the State Board of Health. This will include preschool children but may be extended to include physical examination of school children and general school health supervision. The states will be required to participate financially in any plan that is approved. General advisory committees in Washington, D. C., will include those on maternal and child health, on crippled children and on problems of delinquency. It is provided that physicians will be compensated for their services. Refresher courses in obstetrics and pediatrics will be provided but only upon invitation from local societies.

Crippled children will be cared for through local agencies. including the State Board of Health and the University of Oregon Medical School to the end that care may be provided at the earliest possible stage and to this end advising the public through proper campaigns if deemed necessary. Infant mortality is to be further reduced by teaching mothers better feeding methods.

In answer to questions Miss Lenroot stated that it will be the aim of the administrators of the act to make technical service nonpolitical and continuous. When asked, "what will be the economical effect of the act on the physicians of the state," she stated that the program of publicity will increase the awareness of the public to the need of adequate service by a physician. The provision of free care is to be safeguarded against competition with private practice in those able to pay. The Bureau wishes to have trained physicians act as its directors.

It was voted that such sum as may be deemed necessary by the executive committee be used for the purpose of distributing Hygeia. Ralph Fenton reported in this connection that at a recent meeting of the Trustees of the A.M.A. the distinguished work of the Woman's Auxiliary to the Oregon State Medical Society was very highly praised for its efforts in the distribution of Hygeia.

Dr. Fenton reported that Arthur J. Cramp, who for many years has been head of the department of quackery of the A.M.A. and who leads the fight against quackery, is about to retire on account of increased age and ill health. The thanks not only of the members of the profession but of the public at large are due Dr. Cramp for his work, and the Council voted that the best wishes of the Oregon State Medical Society go to Dr. Cramp on retirement. May he live long to enjoy a well earned rest.

A. G. Bettman,
Editor.

WOMAN'S AUXILIARY

Portland, Ore., Dec. 29, 1935.

The Woman's Auxiliary to Oregon Medical Society held a special luncheon meeting on November 30, at the Campbell Court Hotel in Portland. The meeting was arranged by Mrs. W. F. Patrick, president of the Auxiliary, to hear Miss Kathrine Lenroot of Washington, D.C., chief of the federal children's bureau and president of the national conference on social work, who was on a speaking tour. Miss Lenroot explained the various phases in respect to the provisions of the Social Security Act, dealing especially with problems on maternal and child health, on crippled children and on problems of delinquency. She gave assurance that the provisions of the bill would be carried out with the cooperation of the medical profession. The meeting was attended by Drs. Charles E. Sears and Ralph A. Fenton of the Advisory Council, and also S. G. Henricke, John G. Abele, Thomas Wynne Watts and Mr. Clyde C. Foley, executive secretary of the Oregon State Medical Society.

Mrs. W. F. Patrick has secured a fifteen-minute period for a health program which will be broadcast over KBPS, Benson Polytechnic School radio station at Portland each Tuesday at 12:00 noon preceding the National A.M.A. program which is at 2:00 p.m. The next program will be given January 7 by a member of Multnomah County Medical Society.

The Jackson County Medical Auxiliary held its annual meeting and election of officers December 11. The following members were elected to serve for the ensuing year: Mrs. R. W. Sleeter, Medford, president; Mrs. F. G. Swedenburg, Ashland, Vice-President; and Mrs. F. G. Thayer, Medford, Secretary-Treasurer.

Mrs. Raymond T. Kaupp,
Chairman of Press and Publicity.

WASHINGTON

PUBLIC RELATIONS IN WASHINGTON

Spokane, Wash., Dec. 20, 1935.

I am going to explain the set-up of the State Medical Association and the program it has adopted. Briefly, we have the State Medical Association which is composed of the entire list of physicians in the state who are in good standing, at this time totaling about 1350. These doctors all belong to their respective county societies and by their vote elect members to represent them in the House of Delegates in our state organization. These delegates, in turn, elect the state officers as president, vice-presidents, secretary, treasurer, trustees, A.M.A. delegates and certain other elective officers.

Some years ago the physicians of this state formed the Public Health League because there was no provision in the Association's constitution to take up certain matters which were political in nature. The League, as you all know, has succeeded in a legislative way until now it is an integral part of the State Association and all legislative matters for the state organization are handled wholly by it. In fact, in our by-laws you will find that no member or group can be supported by the medical profession in introducing any legislative measure that has not first been accepted by the legislative committee which will request the Public Health League to sponsor or oppose the proposed measure.

About two years ago, following the incorporation of the several Medical Service Bureaus in the state, the necessity for this branch was seen, and during the state medical meeting, the State Bureau holds its annual meeting and coordinates its work with that of the State Medical Association. Thus we have at present in our State Medical Association three departments: the executive, composed of the president and officers; the legislative, represented by the Public Health League; and the business administrative, exhibited in the Medical Service Bureau. Therefore, we now have an organization that is ready to place the medical profession in its rightful position to the public in business and civic affairs.

This year the Trustees, in accord with our President, Dr. Bice, have delegated the Public Relations Committee, under the chairmanship of F. J. Clancy of Seattle, to perform certain work which necessitates the wholehearted cooperation of every member of the State Association if it is to succeed. This is essentially a campaign of education and has been forced upon us at this time by the emergency created by the alarming advocacy and spread of the doctrines of socialism, by which state medicine is being used as one of the entering wedges.

As I stated, this is a campaign of education. That is where the cooperation of each of you comes in, for we must all become acquainted with the dangers and be armed to combat the invasion. As it sometimes becomes necessary to fight fire with fire, it is now necessary to fight propaganda with propaganda. The Public Relations Committee does not expect that every doctor will take the time to inform himself on this subject in detail, but it does insist that you will accept the findings its members present to you as facts, and then spread the gospel of antisocialism to all of your patients. The committee requests criticism, not backstair criticism, but face to face directly to the committee or through open discussion, for out of this may develop constructive ideas. But you must admit that no one has a moral right to decide as a matter of opinion that which can be determined as a matter of fact.

Remember that the State Association, through this committee, is working for you individually, for your profession, your livelihood, your family, your place in the affairs of men and your place as a freeborn American citizen, than which there is no greater privilege. The forces that are aiming to bring about state medicine are many and varied and are so well financed as to be almost unbelievable, including the many so-called foundations such as the Rosenwald, the Filene, Twentieth Century Fund and so on. Then we have these high school debates in every high school in the United States that will permit them, with prostate medicine literature furnished the debaters in large quantities, all of which is tending toward socialism and state medicine.

Our schools and colleges are full of instructors who teach our children during their formative years such subversive propaganda. In these debates many instructors are wholeheartedly impressing the youngsters that socialized medicine is right and proper. What will be the attitude of these boys and girls toward this subject when they reach their majority and vote? I was told today that one member of our local school board was advocating state medicine. What shall we do about this?

The present condition has arisen largely through the acts of nonmedical persons ordering the conduct of physicians, which has been abetted by the inactivity of physicians themselves. The present day pseudoeconomists are endeavoring to convince the people that a new system of the practice of medicine will benefit the entire population. The first step will be compulsory sickness insurance. There is a strong trend by all classes of society to force physicians to accede to their demands for medical care at public expense. This is socialized medicine. Let us be warned and take a lesson from the evils of the German and Austrian systems, the dissatisfaction attending the French scheme, as well as the agony of the Britains. You can get authentic information regarding the failure and dangers of the Russian plan from one of our own members who was in Russia and saw its results. If we have compulsory insurance we will see such loss of moral values as was experienced under compulsory prohibition.

Let us make this an aggressive campaign. Should lawyers advocate state medicine, let us come out with a program for a public defender where anyone may be defended at public expense. Let us employ attorneys at a living wage only to care for all of our legal problems as a group. And so on through the other professions and business, let us see how the other fellow would enjoy regimentation. What is meat for the goose should be sauce for the gander.

H. E. Rhodehamel,
Member Public Relations Committee.

WOMAN'S AUXILIARY

Wenatchee, Wash., Dec. 28, 1935.

The Womans' Auxiliary to King County Medical Society held its regular meeting December 16. It was full of interest, pleasure and Christmas spirit. Business was omitted in favor of a splendid talk on "Hospitalization," by Miss Blanche Gordon who is Literary Secretary of the College of Surgeons in Chicago and one of the leading authorities on her subject. Following her address members of the Broadway unit of the Music and Art Foundation gave a very pleasing rendition of the Cantata, "The First Christmas," by Louise Adolphe Coernes with the lyric by Cordelia Brook Lewis. Mrs. E. C. Ruge was soprano soloist and Miss Doris Greenwood the accompanist. Mrs. H. F. Thorlakson served as hostess at the tea which rounded out the very successful meeting.

Walla Walla Valley Auxiliary held its regular monthly meeting at Marcus Whitman hotel. Dinner, at which covers were laid for thirty, was followed by a Hygeia program in charge of the chairman, Mrs. G. R. Gowen.

Cowlitz County Auxiliary is sponsoring Hygeia articles in their local paper each week. This is a splendid method of getting scientific medicine before the public.

Chelan County Auxiliary held its regular monthly meeting in the Mirror Room of the Hotel Cascadian. Dinner was followed by a business meeting and an impromptu visit from the Honorable Belle Reeves who brought Mrs. Bice to meet the group. Through them the Auxiliary was invited to join the members of Chelan County Auxiliary in listening to an address by the State President, Dr. Bice, and one by Dr. Clancy of Seattle. Dr. Bice assured the Chelan County organization that they had a true and ever vigilant friend to the profession in the person of Mrs. Reeves who is a legislator from their district.

Press and Publicity Chairmen of each county will do their State Chairman a great kindness if they will get their reports in immediately following each meeting. We wish to get out a circular letter as early in the year as possible. All State Chairmen should report their activities to us.

Mrs. G. E. Horsey,
Chairman Press and Publicity Committee

BOOK REVIEWS

The Human Foot. Its Evolution, Physiology and Functional Disorders. By Dudley J. Morton, Associate Professor of Anatomy, College of Physicians and Surgeons. Columbia University. 244 pp. $3.00. Columbia University Press, New York, 1935.

The author has prepared a very instructive text, the first half of which deals with the evolutionary development of the human type of foot through the millions of years of evolution. This includes, of course, the comparative anatomy in relationship to the higher vertebrates. There is an interesting summary of the accumulative effect of function through the ages on the evolution of the anatomic structure of the organs of locomotion, with special reference to the development of the foot.

The physiology of the foot is made plain by the description of its function in standing, walking and running. The relationship of the foot function to the center of body weight and to the axis of balance is described. The normal weight distribution in the foot has been measured by the staticometer and also by studying normal and abnormal prints of the sole during weight bearing. It is pointed out that there are two factors of importance in maintenance of normal foot balance: first, the natural structural stability of bony and ligamentous structure of the foot; second, a postural stability which is controlled largely by bow string action of the muscles.

A comparatively short section of the book is devoted to functional disturbances of the foot and their treatment. The author places considerable stress on the harmful effect of the congenitally short first metatarsal bone or what amounts to the same mechanical result, a posterior position or location of the sesamoid bones beneath the first metatarsal head. In addition, dorsal hypermobility of the first metatarsal bone and first cuneiform bones may place abnormal strain on especially the second metatarsal head, as well as the three lateral metatarsals, with resultant pressure and strain symptoms in the anterior foot. He also attributes many disturbances of the long arch to these variations. The effect of undue stress on the second metatarsal bone is demonstrated by roentgen evidence of hypertrophy. The frequency of these abnormalities in the population at large has not been determined. The treatment is briefly dealt with. This book is of special benefit to the advanced student of abnormalities of the foot. LEAVITT.

OBSTETRICAL PRACTICE. By Alfred C. Beck, M.D., Professor of Obstetrics and Gynecology, Long Island College of Medicine, etc. More than One Thousand Illustrations. 702 pp. $7.00. The Williams & Wilkins Company, Baltimore, 1935.

In the opening chapters this book deals with the usual ovarian and menstrual cycles. The chapter on the chronologic development of pregnancy is a collective, progressive discourse of symptoms and physiologic changes occurring from month to month during the pregnancy. Mechanisms of labor are well discussed and beautifully illustrated.

The common but frequent posterior position of the occiput is described and illustrated in such a manner as to make the mechanics of this complication more readily understandable. The usual conservative manner of treatment for the toxemias is advised, the only points of difference being the use of a milk diet as a trial during the preeclamptic stage and the withdrawal of 1000 c.c. of blood following a convulsion. The medical and surgical complications associated with or caused by the pregnancy is a complete work in itself and is of inestimable value.

Dystocia due to faulty soft parts as well as by contractions of the bony pelvis are discussed and again beautifully illustrated. Hemorrhages of all types with symptoms and treatment are given in detail. In summarizing this book one may say without a question of doubt that it far surpasses the textbooks formerly used in medical schools because of its simplicity, understandability and use of many illustrations. HELWIG.

DISEASES OF THE THYROID GLAND. By A. E. Hertzler, M.D. Chief Surgeon Halsted Hospital, etc. Illustrated. 348 pp. $7.50. C. V. Mosby Co., St. Louis, 1935.

It is a rather unique procedure for a small country clinic to present to the medical profession the results of the workers on a particular disease. This, however, is probably advantageous, as many investigators are influenced by opinions from associates, and from the isolated clinics the worker may follow more freely his own trend of thought and study. The author derives his opinions from a compilation of materials found at operations compared to the clinical histories and the microscopic findings. Unlike many authors, statistics are not quoted, as he believes the life span of individuals suffering from goiter must be observed before they are of any statistical value. While his work differs in many respects from that of other writers, a similarity is found in his slightly different classification of goiter. In all, attempts have been made to give a clearer conception of the different types. A chapter is devoted to each group, carefully portraying his observations and studies. Believing the bosselated congenital goiter of childhood produces a deleterious substance, beside the failure to produce normal thyroid secretion, he recommends complete removal.

Microphotographs of the different classifications are exceptional and clearly demonstrate the author's interpretation. Many observers are confused because the thyroid gland following operations for thyroidism does not always show marked hyperplastic changes. He finds the same type of gland, but if careful microscopic study is made, areas of hyperplasia are found; however, the remaining portion of the gland struma may be perfectly normal.

The atypical toxic goiter is typical. It is only atypical when compared with the recognized clinical types. In these cases a complete ablation of the thyroid is performed. Rarely he encounters myxedema. In all surgical cases, radical resection has proven most beneficial in his hands. The chapters on tumors of the thyroid gland, goiters in unusual places and the hospital management of goiter patients are especially well written. He employs almost universally novocaine anesthesia, and his chapter on technic of operation, accompanied by perfectly illustrated cuts, round out a well written and carefully prepared book on this subject. BOWLES.

CLINICAL DIAGNOSIS BY LABORATORY METHODS. By James Campbell Todd, Ph.B., M.D., Late Professor of Clinical Pathology, University of Colorado, School of Medicine; and Arthur Hawley Sanford, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation); Head of Section on Clinical Laboratories, Mayo Clinic. Eighth Edition, Thoroughly Revised. 792 Pages with 370 Illustrations, 29 in Colors. Cloth, $6.00 net. W. B. Saunders Company, Philadelphia and London, 1935.

Clinical pathology is a definite specialty of medical practice and any book which has passed through eight editions has made for itself many friends by its usefulness in presenting laboratory methods and suggestions. New methods developed by research workers quickly find their way into laboratory texts. Some methods stay, while others are discarded. This volume has its share. The following are mentioned only to emphasize its completeness. Folin and Macallum's microchemical method for ammonia; Fabricius-Moller test for amylase in urine; Osterberg's test for beta-oxybutyric acid; a test for hemosiderin. The chapters on clinical chemistry are quite complete. In bacteriology a simple technic is described for growing gonococci. It is a volume of value to the clinical pathologic laboratory.

MOSIMAN.

SHORT WAVE THERAPY. The Medical Uses of Electrical High Frequencies. By Dr. Erwin Schliephake, Privatdozent for Internal Medicine at the University of Jena. Authorized English Translation by R. King Brown, B.A., M.D., D.P.H., From the Second and Enlarged German Edition. With Foreword by Elkin P. Cumberbatch, M.A., M.B., B.Ch. (Oxon), F.R.C.P. (Lond.), D.M.R.E. (Camb.). 238 pp. 21/. The Actinic Press, Ltd., London, 1935.

The author is recognized as an authority on short wave therapy which in recent time has attained much publicity. The first portion of the book is devoted to a description of the nature and development of short electric waves for medical use, followed by the medical use of electric oscillations with a description of short wave methods. If one desires technical information on this subject, it can be obtained in this volume. He contrasts the classic diathermy with that in the condenser field, showing that the former selects the course where it encountered no special hindrance, going around other layers, while in the latter a different amount of heating of the individual parts is produced. While many writers consider that the only particular effect of the short wave is the heat produced, the author believes that it has an effect in checking the growth of certain bacteria. He gives his reasons for this belief. Under treatment of human diseases there are specified conditions in which it has been found most useful. The author claims that in the treatment of five hundred more or less extensive furuncles he had only one failure. Some of these he reports as being dissipated by only one or two applications. Like results were announced for carbuncles, whitlows and paronychia. Various abdominal and lung diseases of an inflammatory nature have been benefited, the technic for which is outlined. While this volume does not deal extensively in therapeutic application, it indicates conditions in which this form of therapy may be employed.

THE PATHOLOGY OF INTERNAL DISEASES. By William Boyd, M.D., M.R.C.P. (Ed.), F.R.C.P. (Lond.), Dipl. Psych., F.R.S. (Can.), Professor of Pathology in the University of Manitoba, etc. Second Edition, Thoroughly Revised. Illustrated with 335 Engravings. 904 pp. $10. Lea & Febiger, Philadelphia, 1935.

This book is much more than a pathology of internal disease. The author is fully as much interested in clinical medicine as in pathology and always points out the relationship between anatomic changes and symptoms. He quotes freely from original descriptions by the masters in medicine and some of his own descriptions deserve to be ranked with these quotations, notably his description of the clinical features of two epidemics of encephalitis which he observed in Winnipeg. There are many valuable hints on both laboratory and clinical diagnosis. The author does not hesitate to disagree with prevailing opinions, but always gives his reasons for so doing. In fact, all opinions expressed seemed to be based upon careful consideration of facts and sound reasoning. The language is clear and so well chosen that it is a pleasure to read the book. It is a masterpiece in medical writing and will prove very helpful to any studious practitioner. GRISWOLD.

YEAR BOOK OF GENERAL MEDICINE. Edited by G. F. Dick, M.D., Lawrason Brown, M.D., George R. Minot, M.D., S.D., F.R.C.P. (Hon.), Edin., William B. Castle, M.D., A.M., William D. Stroud, M.D., George B. Eusterman, M.D. 848 pp. Illustrated. $3. The Year Book Publishers, Inc., Chicago, 1935.

This comprehensive volume reviews the best "in the arts and letters" of the medical world for the year 1935. Difficult as it is to review a review, there are several subjects upon which it is interesting to comment. Fever therapy was shown to be most effective in the gonococcal forms of arthritis and there it is almost specific. Kiszelnik notes a relation between thromboangiitis obliterans and typhus, both being found endemic in the Balkans and Soviet Russia. Spector calls attention to the use of small rather than large doses of neoarsophenamine in the treatment of pulmonary fusospirochetosis to obtain best results. In differentiating chronic fibroid tuberculosis from silicosis Harris notes that the former will cause a tracheal shift to the same side while the latter causes no shift in midline structures. Diehl found in a controlled study of various drugs for the treatment of colds that best results followed the combination of codeine and papaverine.

There is an excellent collection of articles on polycythemia and an interesting speculation on the possibility that polycythemia vera is the result of the hyperproduction of the intrinsic antianemic factor of pernicious anemia. King presents an analytical study of heart disease in the Pacific Northwest and shows there has been a progressive increase in the death rate, paralleling that for the U. S. registration area. It is shown radiographically that oil of peppermint decreases the emptying time of the stomach from 10 to 40 per cent and relieves pylorospasm. The volume is well indexed and the bibliography is complete so that one may refer back to the originals for further detail. FOSTER.

JOHN WHITRIDGE WILLIAMS. Academic Aspects and Bibliography. By J. Morris Slemons. 109 pp. $1.50. The Johns Hopkins Press. Baltimore, 1935.

The many admirers of Dr. Williams will find much satisfaction in perusing this volume. It demonstrates the many qualities and characteristics of the man which made him a leader and surrounded him with the affection of many students. His commanding position as a scientist, teacher and practitioner is outlined in this testimonial. His systematic method of living is referred to in an interesting manner, comprising his routine of daily procedures. He was never anxious for a large private practice, considering a case a week sufficient for his needs and otherwise referring cases to his younger assistants. His opposition to the "furor operativus" was well known. This was firmly displayed in his consistent efforts to suppress indiscriminate cesarean section which became popular in recent years. His name will long be associated with modern progressive obstetrics.

A TEXTBOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College, Chicago. Eleventh Edition, Entirely Reset. 825 pages with 202 illustrations. Cloth, $6.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

In this eleventh edition we find a textbook, reference book and a practical book for all engaged in research or general clinical and bacteriologic laboratory work. The author has covered the essentials of the entire subject and has added advances made in the last few years which have been many. In the chapter on bacterial heredity and variations we find the explanation for various changes and modifications in many of our present day diseases; without this knowledge they might appear to be strange or new maladies. This book is worthy of a place in the equipment of every bacteriologic laboratory as a part of every medical library and is as good a textbook on bacteriology as could be found for student use. GARHART.

PRESCRIPTION WRITING AND FORMULARY. The Art of Prescribing. By Charles Solomon, M.D., Assistant Clinical Professor of Medicine, Long Island College of Medicine, etc. With a Foreword by Lewellys F. Barker, M.D. 32 Illustrations. 351 pp. $4.00. J. B. Lippincott Company, Philadelphia, London, Montreal. 1935.

The author states that the prescription is the most important tool wielded by the physician, being to the medical practitioner what the scalpel is to the surgeon, the forceps to the obstetrician and the cystoscope to the urologist. It is stated that many graduates of recent years have not had the drill in prescription writing of former years, hence the field for a volume of this sort. The book is introduced by a history of prescription writing with practical considerations for the same and a description of the methods of administration of drugs. There are a number of reasons why Latin is preferable to English. Being a language unknown to most people it helps to discourage self-medica-

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tion. Its universality makes a prescription intelligible to the physician regardless of the language employed by the practitioner, being the language used in pharmacopoeias of the world. The patient and his family display greater respect for a prescription written in Latin, this language being a mark of education and culture to the layman. More than half of the book is devoted to formulary, comprising a great variety of suggestive prescriptions. Drugs having local action are considered with reference to their particular applications. Numerous prescriptions are suggested for the treatment of various organs, as gastrointestinal tract, nervous, circulatory and respiratory systems. The use of so-called specific drugs received special treatment. Many other factors pertaining to prescription writing are included.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures. By Leading Members of the Medical Profession Throughout the World. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, 331 pp. $3.00. Volume IV. Forty-fifth Series, 1935. J. B. Lippincott Company, Philadelphia, Montreal, London.

In this volume the editor is assisted by eighteen contributors from the faculties and staffs of leading medical colleges who review important medical and surgical contributions during the past year. Among these Kracke and Garver consider hypocytic leukemia which is recognized in three separate types of myeloid, lymphoid and monocytic leukemia, each of which is discussed. Long presents theoretical and practical considerations concerning the use of bacterial vaccines. He considers that the use of "cold vaccines" for prophylaxis and therapy of respiratory tract infections is based on no substantial ground, nor is the belief that the incidence of colds can be decreased by their use. Gardberg reviews extensively the present status of treatment of diabetes mellitus. He states that during the past few years weighing of diets has been abandoned for measuring the food in household quantities. He states that it is just as successful as weighing the diet in so far as controlling the glycosuria is concerned. This volume is recognized as one of the most useful as a review of medical progress.

REGIONAL ANATOMY. Adapted to Dissection. By J. C. Hayner, B.S., M.D., Associate Professor of Anatomy, Assistant Surgeon, Flower Hospital, New York, etc. 687 pp. $6.00. William Wood & Company, Baltimore, 1935.

The author states that practically all books on regional anatomy are merely surgical anatomies, their primary purpose being to show the practical application of anatomic relationships to incidence, diagnosis and treatment of pathologic processes. There is a void of books of purely descriptive regional anatomy. It is with the hope of filling this vacancy that this book has been written. Illustrations have been omitted, since excellent atlases are available. Four sections cover inferior extremity, abdomen and pelvis; upper extremity and thorax; head and neck; and encephalon. Under each are chapters dealing with distinct localities and organs, as anterior abdominal wall, abdomen and peritoneum, epigastric region, etc. Each structure and organ considered is described in detail, giving all relationships needed for purpose of dissection. There are thus minute descriptions of the various anatomic structures as illustrated in the head and neck and encephalon where each structure receives detailed consideration. If one wishes to refresh his memory on anatomic relationships of many portions of the body, he will find this a convenient volume for that purpose.

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1936 DIET MODELS VARY ACCORDING TO THE INDIVIDUAL CASE

All of us are too dietetically casual. We should be taking advantage of the results of modern research on dietary treatment, says Dr. Clarence W. Lieb, who discusses "The 1936 Models in Diet" in the January *Hygeia.*

Today the physician is not satisfied with merely telling a pateint what he should not eat. His advice is positive, not negative. He tells him how to individualize his diet. Two brothers may have diabetes, and both may require insulin; but the general psychologic and dietetic handling of these patients may be quite different.

Another vital factor in dietary prescribing is to avoid thinking exclusively of the local condition and to think of the patient as a whole. Nutritional planning which builds up the health and resistance of the individual will generally affect the local condition favorably.

An excellent example of the changed attitude of the profession in the dietetic treatment of disease is shown by the modern method of treating typhoid. Many may remember the almost fanatical restriction of food in the diets of such patients. Today, thanks to the regimen of high caloric feeding, typhoid is not the dreaded disease of yesteryear. The medical aim is to give balanced rations within the digestive capacity of the patient and to increase vitality and resistance as much as possible.

Nutritional advice for the arthritic patient was often as illogical as it was variable. Some physicians have forbidden tomatoes and fruits because of their acid content. Others have scorned meat under the mistaken impression that it increases the production of uric acid. Patients with arthritis should avoid one-sided or faddish diets.

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CLINICAL MANAGEMENT OF POLIOMYELITIS*

E. B. Shaw, M.D.
SAN FRANCISCO, CALIF.

It is almost impossible to bring you anything that is new regarding poliomyelitis and as a clinician speaking to clinicians I shall not attempt it. Poliomyelitis is not a new disease. Its occurrence is recognizable in antiquity and sporadic cases have unquestionably been present in this country for several generations but only through the last few decades has this disease become of epidemic importance.

Our first good account of epidemics proceeds from western Europe. During the early part of the present century the disease secured a foothold on the Eastern seaboard of this country, spreading about New York and up through the New England states, where epidemics of increasing severity have periodically recurred ever since. Thence the disease spread westward over the northern portion of the United States with little tendency to spread southward, although to say that it will not invade the southern regions is impossible; as a matter of fact at the present time an epidemic is in progress just south of the Mason-Dixon line.

Definite epidemics began on the West Coast in 1910 or slightly prior thereto, and from an original focus in Northern California the disease has spread in extent and steadily increased in severity. To some extent this increase has doubtless been due to better diagnosis but there can be no doubt of the constantly increasing importance of this problem for the whole Pacific Coast. Here the eastern rule has been reversed in that the southern-most portion has been most involved but there is every reason, based on past experience, for the Pacific Northwest to expect a constant increase in the problem.

All the questions involved in combatting this disease have naturally met with tremendous interest and intensive study on the part of physicians, and the public has eagerly accepted any suggestion for its control. The medical literature on poliomyelitis may be condensed to a few facts which have been endlessly repeated, a few suggestions which are promising, and a welter of observation combined with plausible hypotheses from which it is difficult to winnow out the truth. The physician in private practice or in public health activities is confronted with the problem of deciding upon a plan of attack, in which he should strive to retain that of the older knowledge which is good and that of the new which is sufficiently seasoned to be acceptable. The task in this respect is not an easy one and my purpose in this discussion is to attempt to summarize briefly the methods of diagnosis, treatment and prophylaxis which should be part of the armamentarium of every physician.

We may safely start with the assumption that poliomyelitis is a virus disease, contrary claims that it is of bacterial origin having received little general acceptance. In dealing with a virus disease we must remember that such infections present, as regards immunologic behavior, little parallel to bacterial infections. The disease is commonly classed among the infections of childhood but universal experience of the last few years has revealed the fallacy of regarding it as a strictly childhood disease. In fact, our experience on the Pacific Coast has shown an increasing prevalence and a tremendously increasing severity among adults. The commonly quoted reason for adult cases and their severity is the supposition that successive epidemics encounter an adult population partially immunized through previous exposure and that most cases therefore occur among the nonimmune younger age groups. This explanation is in decided contrast to our San Francisco experience,[1] where succeeding epidemics have given a constantly rising incidence and mortality in older age groups and similar observations have been made in other communities, notably in Denmark where the adult incidence is high, despite previous epidemics.

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* From the Department of Pediatrics, University of California Medical School.

*Read before the Forty-sixth Annual Meeting of Washington State Medical Association, Everett, Wash., Aug. 13-14, 1935.

Epidemics characteristically occur in the late summer or early fall but there are numerous deviations from this rule and epidemics of major severity have occurred at the height of the winter. This seasonal incidence has led to numerous attempts at explanation on the basis of various meteorologic phenomena, rainfall, drought, temperature, and to the search for possible insect vectors of the disease, but so far no satisfactory explanation has been evolved which will account for the known facts. Many observers have noted that the disease is usually prevalent at a time when other epidemic diseases are at a low ebb. This is a most fortunate thing, for to differentiate early poliomyelitis from influenza, measles and other systemic infections is not an easy matter.

One need not remember too much regarding the different forms of poliomyelitis. Does the disease have a systemic phase which is followed by invasion of the central nervous system? The contrary point of view is taken by many excellent observers and the weight of scientific evidence favors the view that the disease is purely an infection of nervous tissue. From the purely clinical standpoint, however, one gains the impression that there is an early phase of systemic invasion accompanied by fever, malaise and indefinite illness which is succeeded by a period of central nervous system involvement, chiefly characterized by signs of meningeal irritation, followed by paralytic phenomena. This clinical concept of the disease somewhat resembles the disease picture of meningococcic infections, with early dissemination through the blood stream and secondary localization in the meninges; even more it resembles the somewhat rare central nervous system sequelae of measles, chickenpox, vaccinia, influenza and other generalized infections in which a virus is the probable etiology.

Preparalytic poliomyelitis is the term best applied to all of the symptoms which appear before the actual paralysis. The term *abortive* is often applied uncritically and apparently means different things to different observers. The use of this term should preferably be restricted to those cases in which no paralysis is recognized and recovery ensues. The term abortive should not be applied to those cases in which paralysis is recovered from or to those in which the diagnosis is seriously in doubt. It is doubtful if a meningeal form of poliomyelitis exists as such; the disease does not characteristically produce infection of the subarachnoid space, the virus has not conclusively been identified in the spinal fluid, and the cells which are found in varying numbers in the spinal fluid are in reality the result of inflammation of the deeper structures rather than demonstrably due to infection of the meninges themselves. There seem to be a few cases in which the high spinal fluid cell count is completely disproportionate to the evidences of infection elsewhere in the nervous system, and in these cases the term meningeal poliomyelitis may be justifiable but actual evidence regarding the nature of these cases is wanting.

Poliomyelitis is a disease which commonly affects a great deal more of the substance of the brain and cord than is accompanied by actual symptomatology. Autopsies of fatal cases usually reveal a great deal more evidence of infection than did the attendant paralysis. In the presence of this disseminated infection of the brain and spinal cord paralysis may appear from inflammation at various levels. Depending on the location of these paralyses, the terms *bulbar poliomyelitis* or *spinal poliomyelitis* are commonly applied. The term bulbar is usually applied to cover all paralyses of the cranial nerves, although certain of these proceed from regions well above the bulb.

It is improper to classify all respiratory paralyses as bulbar. Most respiratory symptoms are due to involvement of the intercostals or of the diaphragm and result from lesions in the spinal cord. True bulbar respiratory involvement commonly accompanies paralysis of the pharynx, the tongue and the larynx, and the respiration in these cases is usually irregular and accompanied by hiccoughs and bizarre variations in respiratory rhythm. Death in such cases sometimes occurs very quickly and is due as much to accompanying vasomotor failure as to failure of respiration. The spinal form of the disease is commonest and includes paralyses of the extremities and the trunk as well as most of the forms of respiratory involvement. Combinations of spinal and so-called bulbar paralysis are common and become commoner when cranial palsies are sought for more carefully.

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[1] Shaw, E. B. and Thelander, H. E.: Poliomyelitis in San Francisco. Am. J. Pub. Health, 24:1229-1233, Dec., 1934.

The term *polioencephalitis* can seldom if ever be used with accuracy. Actual lesions of the forebrain are rarely demonstrable and proven cases of infection with poliomyelitis virus can fairly well be restricted to those affecting lower motor neurons and adjacent sensory tracts. Definite sensory involvement is evident both clinically and pathologically; pain and paresthesiae are common concomitants of paralysis. Loss of sensation is not, however, part of the clinical symptomatology, although cases of transverse myelitis are encountered during epidemics of poliomyelitis with sufficient frequency to suggest their possible occasional production by the specific virus. To my knowledge this suspicion has never been actually confirmed.

DIAGNOSIS

The diagnosis of poliomyelitis before the onset of paralysis is not an easy one. After the onset of paralysis diagnosis is usually simple but even at this time weakness may be overlooked if it is not carefully sought for. Patients are sometimes encountered in whom weakness has been discovered only when they tried to get out of bed after an attack of "intestinal flu."

The symptoms of which patients complain in the early stages of the disease are not pathognomonic. When parents ask regarding the symptoms which should cause them to call a physician during an epidemic, there is no better answer than to say that he should be called if the child seems ill in any way. At the onset, the patient seems definitely but seldom seriously ill and headache, backache and muscle pains are usually about of the intensity of an influenzal attack. Various gastrointestinal symptoms, loss of appetite, vomiting, diarrhea and constipation may appear but are inconstant and not at all specific. Accompanying the symptoms of mild illness there is often a degree of lassitude, irritability when aroused, and greatly increased fatigability which is distinctly suggestive. Fatigue is a very important feature in this disease not only as a symptom but also as a factor which may increase susceptibility to attack and further the appearance of paralytic signs. Numerous cases occur in which the patient has participated in prolonged violent exercise, such as athletic events, just before or just after the appearance of the first symptoms of the disease and in these cases very severe paralysis is often seen.

During epidemic times the early diagnosis of poliomyelitis should be regarded as an emergency. Our attempts at specific therapy are admittedly inadequate but from every standpoint the welfare of the patient is best served by an early diagnosis. The patient can then be placed at rest with avoidance of fatigue, careful observations may be secured, he receives the greatest possible value of any treatment which may be applied, and other members of the family and the community are protected from exposure.

Examination of the patient reveals only a few diagnostic signs but these are very important. Patients will invariably have some fever during most of the preparalytic stage. Commonly but not invariably the patient appears more ill than his temperature and general symptoms would seem to justify. The most constant and dependable physical sign is a slight degree of resistance to the last few degrees of flexion of the neck. This sign is not identical with the neck stiffness of meningitis. The meningitic characteristically lies with his head thrown back and resists to some extent all movement in a forward direction and sometimes movement from side to side. In poliomyelitis pain and resistance to flexion is elicited by maneuvers which seem to place actual pull on the spinal cord. If the patient is caused to sit up in bed and asked to bring his head slowly forward on his chest, he will resist only the last few degrees of flexion, usually complaining at the same time of pain in the back of his neck and sometimes at the base of the spine. The same maneuver can be tried with the patient in the erect position. Bending his body and head slowly forward, he will usually complain of pain with the last few degrees of flexion of the neck. This phenomenon is not diagnostic of poliomyelitis and is encountered in influenza and other febrile infections, in which the term meningism is rather loosely applied, but especially during the epidemics of poliomyelitis it is a physical sign of greatest importance.

A second sign of importance is tremulousness of the extremities which is often unequal on the two sides and is sometimes very marked. This will often be noticed in extremities which are later the site of paralysis. This sign is not as constant nor as significant as stiffness of the neck. Certain nervous symptoms are frequently present such as hyperasthesia, sweating and increase in the tendon reflexes, but absence or diminution of the reflexes and muscular weakness or symptoms which belong to the paralytic stage of the disease which may later appear.

Paralyses of the cranial nerves commonly put in their appearance at a relatively earlier stage of the febrile course than do those of spinal origin. Shortly after the onset of the fever one may find diplopia, facial weakness or difficulty in swallowing as evidenced by the collection of a large amount of saliva in the back of the throat. These symptoms, of course, point to an immediately dangerous form of the disease.

The ordinary laboratory procedures are very little help in the diagnosis. The urine shows no characteristic change. The white blood count varies considerably; most commonly the total count is near normal with a relative increase of polymorphonuclear cells. The spinal fluid examination is the most important confirmatory test. Gordon has said that the preparalytic diagnosis of poliomyelitis consists of a sound clinical suspicion plus confirmatory spinal fluid findings. One should not hesitate to perform spinal puncture in these cases for there is no harm in this procedure, if it is gently and carefully performed. A small needle should be used, a local anesthetic takes away most of the pain, care should be observed to avoid obtaining bloody fluid, and the fluid should be promptly studied by one with adequate experience for its content of cells, protein and reducing substance. Cultures of the spinal fluid should routinely be made but they are negative in poliomyelitis and only rarely will there be any difficulty in differentiating pyogenic infections of the meninges from this disease. The tubercle bacillus produces a spinal fluid reaction not unlike poliomyelitis but usually the differentiation is not difficult on the basis of clinical evidence.

Typically the spinal fluid is obtained under normal pressure, examination shows an increase in the globulin, the reducing substance is within normal limits, and there is an increase in the cell count to an average of two to three hundred, rarely higher. In bulbar cases in which there is little spinal involvement the cell count is typically low, fifty to one hundred, and may be within normal limits or only slightly above. In the few cases in which the cell count is normal a positive diagnosis of the disease can be made only when other indisputable evidences of the nature of the infection are present.

Some observers feel that spinal fluid examination is unnecessary in the diagnosis of poliomyelitis. This is, of course, true after paralysis has appeared, but if the diagnosis is to be established before the onset of paralysis or in cases in which paralysis does not appear, it is absolutely essential to seek this bit of corrobatory evidence. This is particularly true in cases which are to be used for the study of various methods of treatment. In the absence of paralysis the nature of the pathology cannot be established on clinical grounds and the evidence afforded by spinal puncture is of great importance. Although spinal puncture does the patient no harm, it seems doubtful that it is of value except for diagnosis. There is rarely any significant increase in spinal fluid pressure and the rationale of repeated punctures as a method of treatment seems most uncertain.

TREATMENT

There are few subjects in the medical literature of the last few years which have engendered so much difference of opinion as the effect of specific therapy in this disease. There can be no question, however, of the tremendous importance of careful clinical attention in influencing the outcome of these cases. It was not so many years ago that physicians watched these cases through the early phase in the hope that paralysis would not appear. When paralyses were evident, the patient was allowed to lie for a period of quarantine without any effort to prevent deformities and to support damaged muscles. At the earliest possible moment the patient was stimulated to voluntary activity and the repair of damage was impeded by the use of electrical stimulation and massage.

Modern treatment has superseded all of this with a cardinal rule of absolute rest. As soon as the diagnosis is even suspected the patient should be placed at general rest so that he may best combat a severe disseminated infection, his surroundings should be cheerful and comfortable, and he should receive expert nursing attention. All unnecessary procedures which might disturb the patient are to be avoided; he should not be subjected to frequent examination to test for loss of muscle power. In a very few minutes at a daily examination it is possible to determine with sufficient accuracy for the early stages of the disease if weakness is making its appearance.

Paralyses should in a measure be anticipated. The feet should be spared the weight of the bedclothes by means of a cradle and the arms may be comfortably suported by means of pillows. When there is any evidence of loss of function, the involved extremity should be placed in a neutral position to protect the weakened muscle groups from the continued pull of opposing muscles and the effect of gravity. The necessity for this can be exemplified by certain types of weakness. If the patient with a weakened deltoid is allowed to keep the affected arm at his side, thus subjecting the damaged muscle to the constant stress offered by the weight of the arm, slight weakness may in a short time be converted into irreparable paralysis. If the patient with a weakened tibialis anticus is allowed to lie in bed with the foot pressed downward by gravity and the tension of the unopposed gastrocnemius group, a slight degree of weakness may similarly be rapidly converted into severe paralysis.

For the support of damaged extremities in neutral position various appliances are recommended. Splints are often advocated because they are so easily applied and removed but this latter virtue is at once their chief fault, for all too frequently parents and attendants will yield to the importunities of the patient and permit the splints to be left off many hours a day. Light weight plaster casts are almost ideal for the purpose of proper support; they can be bivalved and the extremities removed daily for cleanliness and gentle manipulation. During the early stage of the illness the arm can easily be supported by means of a sling attached to the head of the bed which can be padded so as to render support in a neutral position. When the patient reaches an ambulatory status, arm or leg splints may be used if desired.

During the early paralytic stage of the disease it is very important to watch the patient for many symptoms aside from weakness of the extremities. When there is paralysis of the shoulder girdle, of one or especially of both sides, the intercostal muscles and the diaphragm are often involved. It is almost axiomatic that with bilateral shoulder girdle paralysis there will be some weakness of respiration. The appearance of shoulder girdle weakness should indicate the probable need for a respirator, even before there is definite evidence of respiratory failure. Weakness of the muscles of the back and the abdominal wall is readily overlooked. In patients in whom abdominal weakness appears there is often difficulty in securing bowel elimination for a long period of time. In these it is essential to assist proper evacuation from the onset by the cautious use of mild cathartics, lubricants such as mineral oil, and the frequent use of enemas of normal salt solution, aiding evacuation with a minimum of irritation to the intestinal mucosa.

Contrary to much that is written, it is not at all uncommon for the patient to have great difficulty emptying his bladder. This is productive of great discomfort, the cause of which is not always quickly appreciated. Paradoxical incontinence not infrequently appears. These bladder sphincter difficulties are nearly always of short duration but commonly necessitate catheterization under most careful aseptic precautions during a few days at the height of the disease.

Cases with cranial palsies frequently have great difficulty in swallowing, evidenced by the accumulation of large amounts of saliva in the back of the pharynx which impedes respiration and subjects the patient to the danger of aspiration pneumonia. Durand is responsible for the most simple suggestion for the relief of swallowing difficulty which is now employed in most clinics. The patients are placed face down with the feet elevated and the head low, permitting the saliva to flow readily out of the mouth and thus removing much of the danger of pneumonia. During the early stage of constrictor paralysis the patient should not be fed by mouth but may receive fluids under the skin and salt or glucose solution by vein.

Cranial palsies often show a comparatively rapid return of function. If swallowing difficulties persist, they may necessitate feeding by gavage, although this always involves danger of regurgitation and aspiration pneumonia which should be avoided as long as possible. It should always be recognized that there is great danger to life in patients who show paralysis of the palate, the constrictors of the pharynx and the muscles of the larynx, and if symptoms of respiratory failure appear in these patients, efforts at maintenance of respiration by artificial means have generally been attended with little success.

During the febrile stage and often for many days thereafter patients commonly complain of a great deal of pain, discomfort and sleeplessness. These symptoms are very difficult to relieve. Drugs for the relief of pain should be carefully chosen; opiates of all kinds are unsuited for repeated administration, especially because of their effect on the bowel. In our experience the barbiturates have not been particularly useful in the control of sleeplessness, pain and irritability. It is not a good plan to use bromide when casts are necessary for support of extremities because of the possible production of a rash. Paraldehyde is a very good drug in these cases and may be used freely in large doses over a long period of time. Its action may be supplemented with various barbiturates. The patient with slight degree of respiratory failure sometimes manifests anxiety, sleeplessness and depression, which are often mistaken for encephalitic symptoms. Many of these symptoms may be greatly relieved by the use of the respirator.

During the febrile stage and most of the three weeks of quarantine one should be content with the maintenance of complete rest. This rule should not be departed from, even when the patient shows only slight or no paralysis. Most observers have seen cases in which weakness was slight or not evident, in which rapid increase in activity has produced severe and prolonged disability. There should always be thorough cooperation between the pediatrician and orthopedist. If the orthopedist is to take charge of the active care of the patient, he should see him early and supervise the application of casts and appliances.

After the fever has subsided and spontaneous pain and tenderness have largely disappeared attempts at activity should be most cautiously begun. At first one should be content with gentle passive movement, then under careful supervision active movement should be begun, avoiding fatigue or muscle stretching. From this time onward pool treatment, the underwater gymnasium, is of tremendous value. The particular value of this procedure depends upon most simple principles. The effort of gravity is largely eliminated when the patient is in the water, so that only a very small amount of muscular activity is necessary to produce movement. The pool is heated to a comfortable temperature which encourages blood flow and assists in relaxation of opposing muscles. Perhaps the greatest usefulness of the pool, particularly with the severely paralyzed patient, is its effect on the confidence of the patient. He discovers that in the pool he is able to perform many movements which previously he was absolutely unable to perform, thus facilitating his reeducation and the gradual return of strength and coordination in weakened muscles and encouraging his cooperation in the long uphill struggle to recovery.

The care at this stage calls for a considerable degree of experience and resourcefulness on the part of the physiotherapist. There are many patients, however, who cannot for one reason or another be brought to the better equipped centers for this work. It is altogether possible to improvise a tank for such cases in the homes for use along the same general lines as the pool. In the case of infants and smaller children a great deal can be accomplished by carefully instructing the mother how to use a bathtub filled with water for the gentle manipulation and reeducation of paralyzed extremities. In small children the tendency towards complete recovery is so great that astonishing results can be achieved with very simple methods.

RESPIRATOR TREATMENT

The respirator is an additional physiotherapeutic appliance for maintenance of artificial respiration in patients with paralysis of respiration. Obviously it is no cure for respiratory paralysis and its function is simply to preserve respiration for a temporary period, recovery resulting only if the patient's own recuperative processes bring about restoration of function to a satisfactory degree. Unfortunately it is impossible to determine which patients will completely recover and which will never be able to leave the machine. Unquestionably the machine sometimes prolongs a miserable existence in cases for whom there is no hope of eventual recovery. Bulbar cases usually receive little benefit from the machine. Their respirations are irregular, gasping, and the patients fail to adjust themselves to the rhythm of the machine and usually quickly succumb. The spinal types of respiratory failure are best suited to the machine. In these there is progressive failure with increasing respiratory effort and extreme fatigue of the unaffected muscles. When these patients are placed in the respirator, they usually calmly surrender to the rhythm of the machine and only gradually later begin to make voluntary efforts at respiration.

We have encountered all types of respiratory failure. All of our bulbar cases died. Our best results have been obtained in those cases of spinal type in which there was not complete respiratory failure and in which the machine served to supplement the patient's own efforts for a few days, with attendant relief of distress and anxiety and the rapid return of normal function. Several of our cases have come to us almost in extremis; some of these have received almost no benefit; in a few painful cases respiration has been satisfactorily maintained for long periods of time with absolutely no return of respiratory function and eventual death from one cause or another. In a number of cases, however, patients with severe respiratory paralysis have been kept alive over a period during which otherwise they must surely have died and have gradually made a return to nearly normal function perfectly compatible with comfortable life.

We have had no evidence of damage to the lungs caused by the machine as mentioned by Landon.[2] One of our first patients was admitted to the machine in extremis, received rapid relief, was later removed to admit another patient, and was again returned to the respirator after he had lapsed into complete unconsciousness. He was thereafter maintained comfortably for a number of days and gradually made a satisfactory recovery, leaving the hospital breathing shallowly but comfortably. About two years later, during an attack of influenza, he returned to the hospital with symptoms which he said resembled those of the previous respiratory failure. He was found to have almost complete atelectasis of the lower lobe of the right lung. He was returned to the respirator, given both positive and negative pressure with the simultaneous administration of 5 per cent carbon dioxide in oxygen and again he made a good recovery. This patient has a considerable degree of return of function in his paralyzed extremities, gets about freely, and leads an almost normal life.

We have just dismissed from the hospital a sixteen year old girl, on whom the machine was used daily for a month. During the first six weeks she was so completely dependent on it that we despaired of her ever leaving it alive but thereafter she was able to remain out for constantly increasing periods of time, pool treatments have hastened an astonishing improvement in the paralysis of her voluntary muscles, and she is able to maintain respiration quite satisfactorily.

The respirator should be regarded as a physiotherapeutic appliance of distinct value but it should be remembered that the final outcome depends on the recuperative ability of the patient. Proper use of the respirator is dependent on the organization of a well trained team of nurses and attendants who thoroughly understand the operation of the machine and have systematized methods of caring for the patient so that he can quickly be gotten in and out and proper care taken of his cleanliness, his evacuations, the prevention of bed sores and the maintenance of support of the extremities in proper position. By preference the treatment of respirator cases should be undertaken only by those who possess proper facilities, particularly those of personnel, on which the completely adequate care of these patients is dependent.

SPECIFIC TREATMENT

Ever since the discovery that blood serum of convalescents from the disease, as well as of many normal persons, contains substances capable of neutralizing the virus of poliomyelitis, attempts have been made to apply this serum therapeutically. At present the status of such therapy must be considered a completely moot question, although many regard it as settled in the negative by the reports of Park and others who have compared the end-results in treated and untreated cases somewhat after the manner of a controlled experiment, and demonstrated little numerical advantage in the treated cases. Some weight must be given, on the other hand, to the opinions of numerous clinicians who regard this agent as having probable value. The greatest enthusiast must admit that this is not an ideal method of treatment; convalescent or normal human serum contains antibodies in a concentration far too small to permit comparison of its therapeutic virtues with diphtheria antitoxin or similar hyperimmune serums.

Serums, convalescent or normal, vary tremendously in antibody content and it is almost impossible to administer to an individual case an amount of serum which is known to be quantitatively adequate for maximum therapeutic effect. There are variable factors other than the antibody content of serum. Human patients present variables not encountered to so great an extent in laboratory animals. Patients who are infected by chance receive varying amounts of a virus, dependent on the intimacy of exposure and on variations in their individual nonspecific protective mechanisms, and it may be clearly observed that human patients with different infections vary tremendously in their response to all forms of specific therapy.

The situation in the experimental therapy of poliomyelitis is similar to one which might be encountered, if all cases of diphtheria were to be treated with a dose of horse serum which usually contained a small amount of antitoxin but sometimes contained none. An almost perfect parallel is presented by the modern treatment of meningitis in which the antiserum demonstrably contains immune substances, in which clinical opinion almost unanimously supports therapeutic effectiveness, but in which clinical results are unpredictable and statistical studies of end-results present most disappointing evidences of specific effect. It is doubtful if a clinical experiment on such a method of therapy can ever be followed out in human beings in quite the critical manner employed in laboratory animal experiments. No feasible method for the selection of cases can possibly control the innumerable variables which will modify the final result.

I believe that the thoughtful clinician should continue to use convalescent serum until a better method of treatment appears but at the same time one should admit its inadequacy and the weight of scientific evidence against it. Some human serum does contain demonstrable antibodies against the virus. This method of treatment is supported by the opinions of many good observers. The utility of this therapy is no less susceptible of positive proof than that of many other methods in current use, and, finally, if properly applied, this treatment can conceivably do no harm.

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[2] Landon, J. F.: Analysis of 88 Cases of Poliomyelitis Treated in the Drinker Respirator, With a Control Series of 68 Cases. J. Pediat., 5:1-8, July, 1934.

Convalescent serum should be gathered for use after the patient is afebrile and preferably not too long thereafter. If the blood of convalescents is not available, normal adult blood may be used as an alternative. All serum used should desirably be tested for its antiviral properties by monkey inoculation experiments but this is a costly procedure and is, therefore, frequently not feasible. The risk of using serum intraspinally is not justified by the evidence of its value and the physiology of the spinal fluid and the analogies presented by the treatment of other diseases of the central nervous system suggest that antibodies are brought to the affected portions of the brain and cord much more effectively by way of the blood stream than by way of the spinal fluid.

Much has been said regarding the importance of the barrier interposed by the choroid plexus between the blood and the spinal fluid. It should be recognized that the aim of specific therapy is to bring antibodies into the depths at the cord and brain which can conceivably be reached only by way of the circulation and not by way of the spinal fluid. There is no more reason to expect the spinal fluid to carry antibodies to the nerve cells than to regard it as the nutrient supply for these tissues.

The preparalytic stage is the only phase of the disease in which any specific effect of serum may be expected and the emphasis which has been placed on early diagnosis is a very important and useful byeffect of our attempts at specific therapy. Serum should not be wasted in useless gestures in the treatment of those already paralyzed, particularly after the temperature has declined. Patients should receive relatively large amounts of serum, 50 to 100 cc., given intramuscularly. Homologous serum is rapidly absorbed by the blood stream and the patient need not be subjected to the additional risk of intravenous injection. Serum should be repeated at twelve to twenty-four hour intervals during the preparalytic stage, the repetition of the dose being for the purpose of augmenting the amount of antibodies given and attempting to insure that the patient shall have received a potent serum.

The transfusion of convalescent or of normal blood into infected patients possesses the same theoretical indications of value as serum but in addition has the possible virtue of the pronounced and sometimes inexplicable supportive effect of transfusion in any severe infection. Rapid improvement is sometimes seen following transfusion. This improvement may be entirely chance or it may be brought about by specific immune substances in the transfused blood. It is not altogether improbable, however, that certain constituents of healthy blood, apart from specific antibodies, may aid in the defense of the affected patient. It goes without saying that the precautions necessary for safe transfusion must in nowise be minimized because of haste and anxiety, and the procedure should be carefully and expertly performed.

Animals have been hyperimmunized against poliomyelitic virus and the use of their serum has been employed to some extent in therapy. This serum has the virtue of a much higher content of immune substances but has at the same time the inherent disadvantage of producing reactions due to foreign serum. The status of such preparations is no more certainly established than that of convalescent serum, and they should be used only by those who have sufficient cases and adequate experience to permit valid conclusion finally to be drawn regarding their effectiveness. Animal serums of this kind should never under any circumstances be used intraspinally in the treatment of poliomyelitis.

Physicians should be most guarded in the expression of their opinions to patients and the public regarding the value of specific therapy. A great deal should not be claimed and, on the other hand, it is unwise to take a completely pessimistic view. It seems eminently fair to present this treatment as simply the only specific approach to the treatment of a very severe and much dreaded illness.

It is perfectly natural that, with the use of convalescent and normal adult serum in the treatment of poliomyelitis, it should also be proposed to inject these serums as a prohpylactic against the disease. Several fairly large series of mass immunization have been thus attempted. Obviously the same variables which affect therapy similarly affect this experiment. Inasmuch as the ordinary case incidence in epidemics is only one or two in one thousand, it would require an endless number of cases and a generation of experience to furnish critical evidence regarding the effectiveness of this procedure. The greatest disadvantage of advocating a method of mass immunization of this nature lies in the danger that it be presented to the public as a proven method of prevention rather than as an interesting or even promising experiment. The distribution of large amounts of human serum in a hasty manner during epidemic times to a sufficient number of persons to constitute a significant experimental group entails obvious risks which have been pointed out by past experience. The possibility of occasional failures naturally exists, even if the method should on the whole prove reliable. It is doubtful if such a plan of immunization is justifiable or advisable except under conditions in which all concerned are fully informed of the experimental nature of the project.

The latest proposal for prophylaxis, proposed on excellent authority, is for the production of active immunity by the injection of virus-containing monkey cord emulsion which has been rendered presumably innocuous by denaturization in one of several ways. A critical evaluation of this method must depend not on its plausibility nor upon its analogy to methods of immunization which have been effectively applied in other bacterial or toxin diseases but can be judged only after the accumulation of a tremendous amount of experience with this precise procedure.

Several important points must be carefully considered regarding any method for mass immunization. A procedure of this nature must answer the criteria of *safety, utility* and *effectiveness*. The *safety* of this active immunity seems fairly well assured by experiments already conducted but past experience has shown that unsuspected dangers have suddenly appeared in procedures whose safety seemed thoroughly attested. A case in point is the dissociation of toxin-antitoxin mixture with the liberation of dangerous amounts of toxin under conditions which no one had predicted. It is currently accepted that immunity to virus diseases is not produced by a completely killed virus, and in the preparation of the modified virus used for immunization overattenuation results in poor immunity production. The complete innocuousness of these preparations seems open to slight question; at least one of them will produce mild paralyses in monkeys by intracerebral inoculation. It does not seem altogether unlikely that under certain conditions of individual susceptibility, perhaps under the very influences which favor the development of epidemics, certain of the preparations advocated might become dangerous.

Regarding the *utility* of a method for immunization of the entire population, it must be said that the case rate in poliomyelitis is extremely low as compared to those other infections in which mass immunization has been conspicuously successful. In order to be useful for the prevention of a small number of cases it is necessary, therefore, that a method be absolutely safe and utterly effective.

The *effectiveness* of this procedure can only be demonstrated by tremendous experience and the acquisition of this experience will be most laborious and time-consuming. It has yet to be shown that, however safe and however plausible this method may be, it will demonstrably affect the incidence of the disease. It has not been shown, although it seems plausible enough, that human beings with immune substances in their blood stream are actually protected against the disease nor has it been shown that those who in the past have contracted the disease, particularly adults, did not possess immune substances in their blood prior to attack. Typhoid fever undergoes relapse in the presence of good serum immunity, measles and other acute infections proceed to involvement of the central nervous system after there has developed at least the presumption of a general immunity to the specific cause. Active immunization must await incontrovertible evidence, based on extensive experience regarding its safety, utility and effectiveness before there is any justification for its general application as a means of epidemic control.

SUMMARY

I have tried briefly to present those things which a physician must incorporate in his management of poliomyelitis. This disease presents a serious problem to the physician and to the public health which promises in our region of the country to be of increasing importance.

The actual case rate during epidemics is low, the symptomatology is vague, the diagnosis is difficult and is based on a very few significant criteria. It behooves the physician to be extraordinarily vigilant in the recognition of cases at the earliest possible moment; only thus can epidemic control be effectively achieved and the patient receive the maximum possible benefit of specifc therapy and the safety provided by prolonged rest and careful observation.

Convalescent serum offers at present the only specific treatment of any possible value. The value to the patient of prolonged rest and the protection of damaged muscles from the pull of gravity and of opposing musculature, and the prevention of fatigue are matters which are commonly underrated and which cannot be too strongly emphasized.

Physiotherapy and pool treatment are methods which supplement the attempts of nature to repair damage and restore function. The respirator is a physiotherapeutic appliance which supports the patient until his own recuperative power comes to his assistance.

Methods proposed for mass immunization during or prior to epidemics either by passive protection with convalescent serum or active immunization with modified virus rest entirely upon laboratory experiments; the advisability of their application to human beings requires incontrovertible proof before their general acceptance by the physician.

EPIDEMIC MENINGITIS

TREATED BY INTRAVENOUS INJECTIONS OF MENINGOCOCCIC ANTITOXIN*

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This case is reported because it adds clinical evidence to the value of intravenous therapy with meningococcic antitoxin in the treatment of epidemic meningitis.

A Philippine male, aged 44, entered Providence Hospital, Dec. 9, 1935, in great agony. He was very restless and complained of a severe headache. The history obtained from friends of this patient and later from the patient himself when he became well, is that about twenty-four hours prior to admission into the hospital he suddenly felt very chilly and had a severe headache; the headache was first in the occipital and then in the frontal region. Following the onset of the headache he began to vomit. The vomiting continued for about twenty-four hours. During the twenty-four hour period before admission, he was either irrational or semicomatose because he had no recollection of his admission.

Physical examination revealed marked cervical rigidity, hyperactive reflexes and a positive Kernig sign. The axillary temperature was 99°. The pulse was very weak and thready and the examiner was unable to determine the rate accurately nor could the blood pressure be taken because the beats were not heard distinctly. However, after the patient had been given morphine sulphate, digalen and caffeine sodiobenzoate, the pulse was 100 and the blood pressure was 110/66. A blood count was made and it showed a leucocyte count of 21,400, composed of 88 per cent polymorphonuclears and 12 per cent mononuclears. A spinal puncture was done immediately and 30 cc. of very turbid fluid under great pressure was withdrawn. The cell count was 37,600 per cubic millimeter. Smears showed intracellular, gram-negative diplococci.

The following morning the temperature rose to 102.4° per os. In the afternoon the patient was given 20,000 units (60 cc.) of meningococcic antitoxin in 120 cc. of 10 per cent glucose in normal saline intravenously. During the entire day he still complained of his headache, but it was not as severe as at the time of admission. By midnight the temperature had dropped to 99.2°.

The next day, Dec. 11, the temperature rose to 101.2° by noon. A blood count showed 22,050 leucocytes with 92 per cent polymorphonuclears. Twenty thousand units of antitoxin in 120 cc. of normal saline were given intravenously. The time of administration was 25 minutes. The patient slept during the administration of the antitoxin. During the morning he had headaches periodically, but he was fairly comfortable in the afternoon and evening. By midnight the temperature had fallen to 98°.

On Dec. 12, the temperature was normal during the entire day. In the morning petechiae were present on the trunk and extremities. A spinal puncture was done and 2½ cc. of cloudy fluid withdrawn. The fluid was under normal pressure. It had a cell count of 7,940. Smears showed gram-negative diplococci. Twenty thousand units of antitoxin in 120 cc. of normal saline was given intravenously. The time of administration was twenty-eight minutes. A twenty-four hour blood culture was reported positive for meningococci. The patient was very comfortable all day except for some restlessness in the evening.

On Dec. 13, the patient had a fairly good day. A blood count showed 10,750 leucocytes with 83 per cent polymorphonuclears. The highest temperature for the day was 100°. Another 20,000 units of antitoxin in 120 cc. of normal saline was given intravenously.

On Dec. 14, the patient had a very good day. He had no complaints. A blood count showed 13,900 leucocytes with 75 per cent polymorphonuclears. The temperature rose to 100.6° by the end of the day. A spinal puncture was done and 10 cc. of opalescent fluid withdrawn. The pressure was 12 mm. Hg. and the cell count was 1334. Smear showed an absence of organisms, but a twenty-four hour culture of some of this fluid was positive for gram-negative diplococci. A twenty-four hour blood culture was reported negative for gram-negative diplococci. This was the fifth day of illness.

On Dec. 15, the temperature rose to 102.4°. Physical examination revealed rigidity of the neck, normal biceps, triceps and patellar reflexes. Kernig sign was positive, but not as marked as on admission. During the day he complained somewhat of a headache.

On Dec. 16, the temperature had dropped during the morning to 99°, but by evening it rose to 101°. A blood count showed 33,250 leucocytes with 93 polymorphonuclears. A twenty-four hour blood culture was negative for gram-negative diplococci. Thirty thousand units (90 cc.) of antitoxin in 180 cc. of normal saline were given intravenously. This increased dose was used because no antitoxin had been given the preceding two days and because of the increase of temperature and leucocyte count. The patient felt well all day. The cervical rigidity was less marked. This was the seventh day of illness.

The next morning, Dec. 17, the temperature dropped to 98.6 and remained at this level until the patient was discharged from the hospital. A blood count showed 28,050 leucocytes with 94 per cent polymorphonuclears. Another 20,000 units of antitoxin in 120 cc. of normal saline were given intravenously. The cervical rigidity had almost completely disappeared. The Kernig sign was still slightly positive. The patient felt cheerful and well from this day on. He sat up in bed with ease.

On the twelfth day a spinal puncture was done and 5 cc. of clear fluid was withdrawn. The pressure was 10 mm. Hg. The cell count was 45 per cubic millimeter. Cultures of this fluid did not reveal any organisms after twenty-four hours. The patient was allowed this day to get out of bed and walk around his room.

On Dec. 23 and 24, throat cultures were made twenty-four hours apart. These were reported negative for meningococci.

The patient was discharged from the hospital and he left walking on the morning of Dec. 25.

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* Reported before a meeting of staff of Providence Hospital, Seattle, Wash., Jan. 7, 1936, through the courtesy of Dr. R. W. Dillon, attending physician.

The total amount of meningococcic antitoxin injected intravenously was 130,000 units (390 cc.). Before the first injection was given, the patient was tested for sensitivity to the antitoxin. The skin test showed a negative reaction. At no time either during or after the administration of the antitoxin did the patient have any kind of a reaction.

During the entire course of the disease four spinal punctures were done for diagnostic purposes. At the time of the first spinal puncture, 30 cc. of spinal fluid was withdrawn to help relieve the headache. More of the spinal fluid could have been obtained at that time as the pressure was still higher than normal.

The patient could have been discharged from the hospital sooner, but because of a health department ruling, he could not be released before twelve days from the onset of the illness.

The able and complete discussion of meningococcus meningitis by Heiman and Feldstein[1] as early as 1913 did not contain any mention of the use of antimeningococcic serum intravenously. The value of the intravenous route in the treatment of meningococcic cerebrospinal meningitis was first demonstrated in 1918. At that time an unusually severe case[2] of meningitis was treated by combined intravenous and intraspinal injections of antimeningococcic serum. Zinsser,[3] in his Textbook of Bacteriology, states: "Everyone dealing with meningitis during an epidemic must remember that occasionally meningococcic septicemia cases occur which never show meningeal infection. Blood cultures will diagnose these cases and vigorous intravenous serum treatment would be indicated."

In 1925 Ferry[4] started a series of experiments to prove that the meningococcus liberates an extracellular toxin and that an antitoxin could be made. It was considered by him more than probable that the symptoms of the disease caused by the meningococcus were, in many instances, an index of a profound toxemia and that under certain favorable conditions the meningococcus might be made to produce a toxic substance extracellular in nature. It was believed also, if this were true, that an antitoxin, which would neutralize in a measure the toxic substances as they are formed and which would combat this toxemia, was not without its possibilities.

Ferry prepared the extracellular toxin from the filtrate of a four- to six-day hormone broth culture, containing the strains of the four recognizable types of the meningococcus. Continuation of this work led to the immunization of horses with subcutaneous injections of the toxin, and thus the preparation of the antitoxin.

Meningococcic antitoxin differs from antimeningococcic serum in that the latter, of which Flexner's[5] serum is almost exclusively used in America, is prepared from horses that have received subcutaneous injections of killed meningococci and the autolysate of the organisms.

The treatment is readily apparent if meningococcic meningitis is really a toxemia. In his report of March, 1935, Hoyne,[6] using for the first time in man, Ferry's meningococcic antitoxin, demonstrated the value of both the antitoxin and the intravenous route for its injection. He used, for the basis of his conclusions, the results obtained from a series of 296 patients at Cook County Hospital. Eighty-five patients received meningococcic antitoxin and 211 received two well known standard brands of antimeningococcic serum. The clinical diagnosis of all but forty cases was verified by smear or cultural identification of the specific microorganisms in the spinal fluid.

The percentage death rate was 23.5 for the antitoxin and 45.9 for the antiserum. The period of hospitalization for all recovered cases in that group receiving antitoxin averaged 16.2 days as compared to the antiserum treated group, which averaged 18.0 days per case. The average hospitalization time for 338 cases at Cook County Hospital recently reported by Borovsky[7] was twenty-three days. In no instance did an ocular or auditory complication develop after the institution of antitoxin therapy.

In the series of eighty-five cases, the antitoxin was injected intravenously and intraspinally. The greater the quantity of antitoxin given intravenously, the smaller the average amount required for intrathecal injection. Four of these eighty-five cases that recovered did not receive any injections intraspinally but all the injections were given intravenously.

The most outstanding feature of intravenous antitoxin treatment is the prompt response of the infection and a more than 20 per cent reduction in the period of hospitalization.

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[1] Heiman, H. and Feldstein, G.: Meningococcus Meningitis, J. B. Lippincott Co., Philadelphia, 1913.

[2] Hoyne, A. L., Arkin, H. S. and Sherman, M .J.: Treatment of a Severe Case of Epidemic Meningitis by Combined Intravenous and Intraspinous Injections of Antimeningococcus Serum, J. A. M. A. 72:22, Jan. 4, 1919.

[3] Zinsser, H.: Textbook of Bacteriology, 6th Edition, p. 445, 1930.

[4] Ferry, N. S., Norton, J. F. and Steele, A. H.: Studies of Properties of Bouillon Filtrates of Meningococcus; Production of a Soluble Toxin. J. Immunol. 21:293-312, Oct., 1931.

[5] Heiman, H. and Feldstein, S.: vide supra.

[6] Hoyne, A. L.: Meningococcic Meningitis, A New Form of Therapy. J. A. M. A. 104:980-983, March 23, 1935.

[7] Borovsky, M. P.: Meningococcus Meningitis; Further Clinical Study. Illinois M. J. 64:532-539, Dec. 9, 1933.

A CASE OF MENINGOENCEPHALITIS

WITH SPECIAL REFERENCE TO AN ORGANISM FOUND IN THE SPINAL FLUID*

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The following case is reported because of special interest in the fact that an apparently hitherto undescribed gram-positive bacillus was obtained in pure culture from the spinal fluid of this patient during the activity of the disease. Also of interest is the fact that this patient for two years or more was on duty as ward nurse caring for and in close contact with cases of residua of epidemic encephalitis of long standing.

L.L.S., a trained nurse, employed in this facility since 1920, born August 8, 1891, of French-Canadian parentage. Her family history is negative. Smallpox in childhood; appendectomy 1913; tonsillectomy 1914, and herniotomy, left, direct, inguinal, 1917.

She enlisted in the Nurse Corps, of the U. S. Army, March 24, 1918, and served eighteen months overseas. While on duty at Evacuation Hospital No. 1, A. E. F., she had a mild attack of influenza. She was sick in quarters five days. Her condition which was complicated by urticaria of severe degree, was first thought to be scarlet fever or erysipelas. She was also troubled with sinusitis. There was a recurrence of hernia at the time of the St. Mihiel drive.

She suffered from an attack of pleurisy and tracheobronchitis in 1921, and was very sick for three weeks; during this illness it was discovered that she had nephritis. In the fall of 1922 she had another attack of pleurisy. She developed varicose veins of both legs which were injected about 1931; this was followed by an abscess of right leg with complete recovery. From 1931 to the beginning of her present illness, i.e., for a period of about two years, she was on duty in a closed ward in a facility in which there were a number of patients suffering from the residuals of encephalitis, all of the cases of long standing, the most recent of them having acquired the disease about 1929.

Present Illness. This began rather suddenly, December 12, 1933, while she was on night duty as relief nurse. She was seized with chilly sensations, nausea and vomiting of bile-stained material. Early the following morning she had a severe chill followed by a body temperature of 100 degrees F., and severe continuous pain at the base of nose and in the occipital region. She attributed her illness to getting her feet wet while going from ward to ward in the rain during the previous few nights. She began menstruating, although her regular normal period had stopped only a few days before. As the headaches were not relieved by aspirin and other anodynes, she was transferred to the women's ward two days later, where only codeine in large doses gave relief.

Physical Examination. The patient appeared to be very ill; she was well nourished and developed; musculature firm; face slightly pock-marked from smallpox when a child; skin otherwise clear and good color; slight varicose veins, both legs, postoperative. The heart was negative except for a soft, inconstant systolic murmur heard over the entire precordial area which practically replaced the first sound; later this disappeared entirely. The radial pulse was 112; blood pressure, systolic 128 and diastolic 70. Chest: medium long, broad and thick; expansion good and symmetrical; respiration 24; lungs normal. Abdomen: normal except for postoperative appendectomy and left herniotomy scars with recurrent direct inguinal hernia left, moderately symptomatic at the present time, and a slight tenderness in the abdominal muscles due to frequent vomiting during the past two days. Moderate rigidity of neck muscles. Kernig's sign positive. Reflexes were hyperactive. Very tender on pressure over occipital region, more marked on the right side.

She was very emotional, frantic, begging for something to relieve unbearable, throbbing occipital pain.

Urinalysis: reaction acid; specific gravity 1.034; albumin 2 plus; hyaline and granular casts. Blood examination: red cells 4,120,000; white cells 8,300; polymorphonuclears 80 per cent; lymphocytes 20 per cent; 6 per cent of polymorphonuclears immature; hemoglobin 69 per cent. Culture from nasopharynx showed a scanty growth of gram-positive cocci. Spinal fluid: pressure, 450 plus mm. by water manometer; color hazy; 812 cells per cu. mm. (95 per cent small lymphocytes); sugar content 38 mgm. per 100 cc.; Wassermann test negative; colloidal gold curve 0023321111. No organisms demonstrated. Following withdrawal of spinal fluid there was a definite subsidence of severity of headache.

The sudden onset with chill, nausea, vomiting, intolerable occipital headache, rigidity of neck muscles, positive Kernig sign and spinal fluid findings, seemed to justify the diagnosis of meningitis, type undetermined. The following day rigidity of neck muscles had increased and her head was burrowed in the pillow. Moderate Kernig positive.

On the fourth day of illness the tongue was deviated to right. There was an internal strabismus, more marked in the left eye. The pupils were equal, round, about 2 mm.; did not react to strong light or convergence. She was confused mentally when aroused from a somnolent state. The next day there was some twitching and running of muscle fasciculi in face and arms. Deep reflexes were very difficult to elicit. At that time there was a slight ptosis of both upper eyelids, more marked on the left side. Speech was of a jargon mumbling type. Articulation indistinct. Very difficult to understand what she said. Continued in more or less of lethargic state with some delirium. When aroused was confused. Talked quite a little, mixing French with English. Left side of face was flattened, did not move as freely as the right side. There seemed to be general muscular soreness and stiffness. She flinched and scowled as though in great pain when the extremities were passively moved. Very few voluntary movements of extremities, practically none of the left arm and leg. There was retention of urine and involuntary feces.

The condition remained about the same for about eight days, then neurologic manifestations slowly improved. There were periods of profuse sweating. When aroused from her lethargic state, she seemed to recognize persons and attempted to answer questions more intelligently. She complained of seeing "two of everything." There was marked difficulty in swallowing. Speech defect was quite marked, irregular and jerky. The patient was inclined to repeat the first syllable of a word several times, or the first word of a sentence, and often would repeat what she said. Speech was rather slow and monotonous most of the time, occasionally she would raise her voice to a rather high pitch.

Headaches were less persistent. She frequently complained of occipital pain, especially when the head was moved. At no time was there evidence of choking of disks or papilledema. The retinal vessels were somewhat injected. Headaches seemed to be relieved to a marked degree by removal of spinal fluid. There was considerable drooling; when she slept, saliva ran from the corners of the mouth. There was marked dysmetria noted when extremities were voluntarily moved, and general muscular incoordination with a tendency to athetoid movements. When aroused from the lethargic state she was emotionally very unstable, very irritable. Tried to talk a great deal but had difficulty in making herself understood.

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* Reported from Veterans' Administrative Facilities.

* Published with permission of Medical Director of the Veterans Administration, who assumes no responsibility for the opinions expressed or the conclusions drawn by the writers.

Convalescence was rather slow and on the mental side was very stormy. Was very temperamental. Emotionally unstable, very unreasonable and later, as she realized her condition, became very much depressed and cried a great deal. Worried about her condition. At times there were manifestations of maniacal outbursts, striking the nurse, refusing to cooperate, etc. When the patient was strong enough to sit up, there was a marked nodding of head and a tremor of hands and fingers. There was marked dysmetria of the upper extremities. In attempting to feed herself, she would overreach, slop and spill food. With difficulty drank tea from cup by holding it with both hands. There were fairly well marked choreoathetoid movements of the upper extremities on voluntary effort. When strong enough to get on her feet, she had difficulty in standing, was inclined to fall forward, with propulsive, sprawling gait. Complained of feeling of falling forward. The only complication was that of cystitis as a result of retention of urine; this gave the patient considerable discomfort.

May 29, 1934, the nodding movements of head had lessened, as well as the tremors. The gait was of a propulsive, sprawling, festinating type. The athetoid movements of upper extremities were present to a less degree on voluntary movements. Writing was very irregular, showing marked dysmetria. There was an absence of associated movements of both arms in walking. Speech defect was very marked; was of a slow drawling character, frequently repeating words of a sentence. She made great voluntary effort in talking. There was also considerable difficulty in swallowing, requiring voluntary efforts to swallow. There was a rather marked mask-like facies with infrequent blinking of eyelids. At that time there was no nystagmus. Pupils normal. No paralysis or sensory disturbances demonstrated. Reflexes normal.

Repeated Wassermann tests of both blood and spinal fluid were negative. Lange's test, which was made seven times, never was a normal curve. On January 3 the curve was of the paretic form (5555543100); this form persisted in all subsequent specimens, including that of May 10.[1]

The cell count of the spinal fluid has always been high, the lowest, 43 per cu. mm, being that of January 3. Dextrose has always been present in approximately normal quantity.

She has shown some improvement mentally; however, there is considerable emotional instability. Is depressed about her condition. Shows very poor judgment.

The sudden onset with general malaise, excruciating occipital pains extending to forehead and eyes, high temperature, and serologic findings, were those of a meningitis. Later developments, running of muscle fasciculi, diplopia, dysmetria, marked loss of balancing movements, sprawling, propulsive, festinating gait, speech defects, dysphagia, marked drooling, marked sleep disturbances, with emotional instability and mental deterioration, are more characteristic of encephalitis lethargica. These latter manifestations could not well be attributed to meningitis alone; therefore, the following clinical diagnosis was made—meningoencephalitis.

The organism referred to was found in pure culture in the spinal fluid obtained December 18 and, likewise in pure culture, in each one of eleven subsequent specimens of spinal fluid obtained on the following dates: December 19, 21, 22, 26, 28, January 3, 8, 10, 18, March 8, and April 12. Cultures made from the fluid obtained May 10 were for the first time negative. Needless to say, precautions were taken against contamination in taking and handling of the spinal fluid specimens. These precautions included the exposure of blood agar plates in the operating room, control cultures of the skin at the site of the puncture and of the local anesthetic employed.

A systematic study of the organism was undertaken with the generous cooperation of Dr. E. W. Schultz, Professor of Bacteriology and Experimental Pathology at Stanford University, whose major part in the bacteriologic investigation of the case is here acknowledged. A preliminary report has already appeared (Bacteriological Observations on a Case of Meningoencephalitis. E. W. Schultz, M. C. Terry, A. T. Brice, Jr., and L. P. Gebhardt, Proc. Soc. Exp. Biol. and Med., 1934, 31, 1021-1023), from which we quote as follows:

"In the original broth and blood agar cultures the organism is a short, plump bacillus which on subculture on certain media becomes longer. In Veillon agar stabs it tends to give rise, even in young cultures, to much longer rods, sometimes mixed with straight and spiriliform threads, short comma forms, ring forms and solid spherical bodies. These forms revert promptly to short, plump rods on transplantation to broth or other media. It is Gram-positive, nonmotile, does not form spores, is not acid-fast and not capsulated. It is a facultative anaerobe, grows well on the usual laboratory media and is not exacting in its temperature requirements. On blood agar plates, it forms small streptococcus-like colonies. After forty-eight hours a well defined zone of almost complete hemolysis is present. A faint uniform turbidity is imparted to liquid media. It ferments the following carbohydrates without gas production: dextrose, levulose, rhamnose, xylose, maltose, dextrin salicin and adonitol. Lactose, sucrose and glycerol are fermented slightly after some days. It does not ferment galactose, raffinose, inulin, erythrol, mannitol or dulcitol. Neither does it liquefy gelatin nor coagulated blood serum. Hydrogen sulphide and indole are not formed. Litmus and methylene blue are strongly reduced, but nitrates are not.

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[1] In the group of cases in the St. Louis epidemic, studied by Broun and his associates, 90 per cent of the colloidal gold tests showed a tabetic curve on admission and most of them showed the same on discharge. One or two showed a paretic curve. (Broun, G. O.: Discussion on the Epidemic of Encephalitis in the St. Louis Area. Annual meeting Central Soc. for Clin. Research, Chicago, Oct. 27-28, 1933. J. A.M.A. 101: 2147, Dec. 30, 1933.)

"The organism is pathogenic for mice, guinea pigs, rabbits and rhesus monkeys, freshly isolated cultures generally being fatal within seventy-two hours after intravenous or intracerebral inoculation. Rabbits seem most susceptible. The most characteristic gross lesions are minute (0.5-1 mm.), yellowish, opaque miliary lesions which may be located in the meninges, brain, kidney, adrenal, heart muscle, spleen and liver. Microscopically there are small foci of necrosis, surrounded and invaded by proliferating histiocytes and leucocytes and frequently interstitial hemorrhage. In the central nervous system the lesions are found particularly in the leptomeninges and the adjacent nervous tissue."

Dr. Schultz and his coworkers concluded that the evidence so far as then obtained indicated that the organism fell, systematically, in the so-called diphtheroid group and that hitherto it had not been described. They suggested for it the name "corynebacterium parvulum."

In this connection it is interesting to note that recently Burn[3] (Unidentified Gram-positive Bacillus Associate with Meningoencephalitis: Caspar G. Burn, Proc. Soc. Exp. Biol. and Med., 1934, 31, 1095-1097) has reported finding a small nonsporeforming, nonacid-fast, Gram-positive bacillus in three cases of meningoencephalitis in infants. The organisms were obtained during the clinical course of the disease of two of the infants and in all three instances they were isolated from the heart blood at the postmortem.

Burn's organism is similar to the one we describe in a number of particulars, among them the following: a tendency in cultures to form longer rods or filaments; a likeness to hemolytic streptococci on blood agar plates; identical relation to seven of the eight sugars which Burn reports on, differing from ours only in the case of galactose; failure to form indole or reduce nitrates; effect on gelatine and on litmus milk; readiness of growth on ordinary media; long survival on ordinary media without transfer; pathogenecity for laboratory animals; central nervous system involvement; occurrence of small foci of necrosis in spleen and liver.

Burn calls attention to a resemblance between his organism and bacterium monocytogenes and has further work in progress in the study of that relationship.

PHYSIOLOGIC CONSIDERATIONS IN CARDIAC DISEASE *

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Disease may be defined as an abnormal physiologic state, or as a change in function that is sufficiently marked to interfere with normal body processes. Disease is not necessarily produced by an anatomic change but does follow upon derangement of function, that is, upon physiologic abnormality. The individual with adhesions in the abdominal cavity remains symptom-free unless those adhesions produce obstruction or otherwise interfere with the normal functioning of the gastrointestinal tract. Anatomic changes are significant only because they so frequently result in disturbed physiology with resultant disease. The importance of this relationship for clinical medicine is recognized in the schema of diagnosis approved by the American Heart Association, in which etiologic, anatomic and physiologic diagnoses are stated and the degree of impairment of function is estimated.

We are apt to overemphasize the anatomic changes characteristic of certain diseases, because only these changes are revealed postmortem. Actually, however, the patient does not die from the lesions revealed on the autopsy table, but from the functional changes correlated with them. The study of normal and abnormal physiology has, therefore, assumed an increasing importance in medicine. We may roughly divide this study into the fields of pure and applied physiology, but there is no hard and fast dividing line. As in all other sciences, the pure physiology of today is applied tomorrow. I shall, therefore, present to you in these lectures the more important physiologic principles and recent advances in the fields under discussion, emphasizing where possible the practical implications, but without apology for the discussion of facts which have no immediate application yet which are important in the understanding of normal processes.

THE WORK AND EFFICIENCY OF THE HEART

It is axiomatic to say that the symptoms present in heart disease occur because of failure of the heart to fulfil its function, that is, because it becomes an inadequate pump. At one time it was believed that the heart possessed another function, that of aspirating blood into itself from the great veins. Modern investigations teach that the heart has no suction action, that it is filled entirely by the dif-

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* From the Department of Physiology and Pharmacology, Northwestern University School of Medicine.

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ference in pressure between the heart chambers and the veins. Auricular contraction aids in filling the ventricles to raise the pressure of the blood they contain from the venous level to a value greater than the pressure existing in the large arteries, and by expelling this blood to maintain a constant, forceful flow in the vascular system with a steep pressure gradient between the arteries and the veins. In exerting pressure upon its contents and forcing them into the arteries against the pressure head existing there, the heart performs mechanical work. It is apparent that an increase in blood pressure will cause the heart to perform more work at each beat, just as more work is done when lifting a heavy weight than when lifting a light one. An increased amount of work will likewise be performed when either the output per beat or the heart rate is increased.

An understanding of the factors which affect the amount of mechanical work performed by the heart is important in analyzing the effects of heart disease, since the amount of work which can be performed is decreased by pathologic changes. Of still greater importance is the efficiency of the cardiac contractions. Efficiency is expressed as the amount of mechanical work done, divided by the total amount of energy liberated. Since the total energy may be readily calculated from the oxygen consumption, measurements of cardiac efficiency can be carried out experimentally on the isolated hearts of animals. It has been found that about 20 per cent of the total energy liberated is available for mechanical work, the remainder passing off as heat. This figure of 20 per cent for efficiency compares favorably with that for the steam engine. A decrease in cardiac efficiency means that the heart must consume more oxygen and food materials (glucose, etc.) in order to perform the same amount of work. Efficiency is often greatly reduced by the presence of heart disease, as can be demonstrated by a consideration of the factors concerned, first, in mechanical work as listed above; and, second, in total energy expended (oxygen consumption).

Changes in the efficiency of the heart which are produced by disease occur largely because of a disproportion between rate and stroke volume. To explain this statement let us consider the events of the cardiac cycle. It will be recalled that during a brief period early in systole the contraction of the ventricles is serving only to raise the pressure of the blood within them. All four valves are closed, and blood is neither entering nor leaving the heart; this interval has been called the *period of isometric contraction* or of rising tension. During this time the heart is performing no mechanical work, but the contraction of the cardiac muscle is requiring an increase in oxygen consumption over the resting level. If any cardiac contraction fails to expel the normal quantity of blood, as may happen when an extrasystole occurs early after the preceding normal beat, the oxygen requirement for the contraction will not decrease in proportion to the lessened amount of mechanical work performed.

Sources of energy (oxygen and food materials) are required both for the isometric contraction and for the expulsion of blood. If the cardiac output is made greater by an increase in output per beat, the number of isometric contractions will not be increased, and therefore the total energy expended will not be elevated in proportion to the increased mechanical work. But if the greater cardiac output is brought about solely by an increase in heart rate, the total energy requirement will be proportionately higher. One of the principal effects of myocardial disease is to reduce the amount of blood which the heart can expel with each contraction. If the pathologic changes are not too far advanced, this decrease in stroke volume may be compensated for by an increased heart rate. Under such conditions the proportion of metabolism accounted for by the nonexpulsive fraction of the contraction is abnormally high and cardiac efficiency is consequently decreased. This entails a more rapid rate of oxygen utilization for the performance of an equal amount of external mechanical work (equal cardiac output), and the amount of work which the diseased heart can perform may, therefore, be limited not only by the weakness of its muscle fibers but by its greater oxygen requirement.

One of the favorable effects of digitalis is the development of an increased stroke volume, which permits of a slower rate while maintaining or even increasing cardiac output, and thus increases the efficiency of the heart. Another illustration is supplied by the behavior of the heart of the athlete as compared with that of the untrained individual. Increased cardiac output during physical exercise in the untrained man is brought about chiefly by an increase in rate; in the athlete the output per beat may double or triple, thus requiring a smaller increase in rate for an equal increase in cardiac output. The heart of the athlete, in other words, behaves more efficiently.

Factors affecting stroke volume. Since the efficiency of the heart is so intimately concerned with the relationship of stroke volume and rate, we should discuss the mechanisms by which variations in stroke volume are produced. A consideration of rate is more conveniently deferred, to be discussed under mechanical abnormalities of beat. The "Law of the Heart," first promulgated by Starling and now generally accepted, states that the strength of the cardiac contraction is proportional to the initial tension of the muscle fibers. Initial tension, which is the pressure within the ventricles at the onset of systole, will depend upon the amount of blood in the ventricle at the beginning of contraction. If heart rate remains constant, an increase in venous pressure will obviously bring about a greater ventricular filling during diastole. The heart will, therefore, contract under greater initial tension, will contract more forcefully, and the stroke volume will be increased. If, however, heart rate is accelerated, the time allowed for ventricular filling will be reduced, less blood will enter the heart during diastole, and initial tension will be less. Other things being equal, an increased rate will result in a decrease in output per beat. In exercise both venous pressure and rate are increased; under such circumstances the ventricles may be filled to capacity even in the face of an acceleration in rate, and stroke volume may become greater.

It has also been demonstrated that an increased arterial pressure will bring about a larger output per beat. When arterial pressure is raised abruptly, the ventricles are unable to expel their full contents in the face of this increased resistance, and more blood remains in the chambers at the end of systole. Diastolic filling, however, proceeds normally, with the result that at the onset of the next systole the ventricles contain the amount of blood brought to them by the veins, plus the quantity which they were unable to expel against the heightened arterial pressure. There is, therefore, a greater initial tension in this instance also, and since this results in a stronger and more complete contraction, the ventricles promptly become able to expel a normal quantity of blood per beat even though arterial pressure remains high.

PHYSIOLOGIC CONSIDERATIONS IN LEFT VENTRICULAR FAILURE

The effect of any type of heart disease is to limit the amount of work the heart can do. In this respect valvular disease, coronary thrombosis and myocardial disease are similar, that they reduce the ability of the heart to perform work. Since the majority of pathologic changes affect the left ventricle, we may consider first those perversions of physiologic processes that arise as the result of failure of the left side of the heart to perform its normal functions. The symptoms that follow left sided failure will in general be similar, whether the lesion affects the valves or the myocardium.

We may illustrate the conditions obtaining in left ventricular disease in the human by a description of the events following acute left heart damage in the experimental animal. The first and immediate effect is a decrease in the amount of blood which the left ventricle can expel in a single contraction (decreased stroke volume). If the right heart is pumping perhaps 35 cc. of blood at each beat, and the stroke volume in the left ventricle is reduced to 32 cc. as a result of our experimental lesion, each heart beat will permit 3 cc. of blood to accumulate in the vessels of the lungs. During the course of the first few beats which follow the production of mitral regurgitation, the pulmonary vessels will become engorged and pulmonary venous pressure will rise. The greater pressure difference between the blood in the pulmonary veins and the interior of the relaxed left ventricle leads to a greater degree of filling; with high venous pressures the left heart will dilate. The musculature of the ventricle is stretched during diastole, and the heart contracts under greater initial tension.

The effect of increased venous pressure upon the normal heart is to produce an increased filling, increased strength of contraction, and consequently an increased stroke volume. The partially damaged heart responds similarly to these influences, and if the pathologic changes are not too widespread or the ventricular musculature too greatly damaged, the left ventricular stroke volume can keep pace with that of the right ventricle. An increase in rate is also commonly present in heart disease, and is one of the mechanisms by which the cardiac output is kept adequate for the needs of the body. But where the left ventricle is primarily affected an increase in pulmonary venous pressure appears to be essential to enable the stroke volume of the left heart to equal that of the right. If pulmonary venous pressure should fall and the effect of increased initial tension on the left ventricle be removed, the diseased chamber would then revert to its former condition of decreased output per beat.

In the human heart, obviously, the changes produced by disease are not abrupt, and other complicating factors, notably the arrhythmias, may be present. But it should be clear that the first effect of left ventricular failure is to increase the amount of blood in the pulmonary system and, therefore, the pulmonary venous pressure. Pulmonary arterial pressure may later increase, thus placing an added burden upon the right ventricle. The development of these changes is slow and usually progressive. It has been noted that the increased pulmonary venous pressure is responsible for the dilatation of the left ventricle. A short period of abnormal dilatation is probably an adequate stimulus to hypertrophy. The hypertrophied, dilated ventricle operates under a metabolic handicap, because the increase in size of the individual muscle fibers (which may almost double in thickness) may become so great as to interfere with the diffusion of gases and metabolites through the muscle tissue. It has been calculated that an increase in fiber thickness beyond 25 micra. is harmful. Normal fiber thickness is about 17 micra, and in congestive failure may reach 30 micra. Not only is the original pathologic process commonly progressive, but dilatation, as is well known, may lead to a relative insufficiency of the valves which throws a further burden on the heart. Such progressive failure of the left heart eventually results in so much pulmonary congestion and increase in pulmonary arterial pressure that the right ventricle can no longer meet the added load. The right heart dilates and hypertrophies, relative insufficiency of its valves occurs, and failure of the right ventricle is finally superimposed upon the left heart failure. The sequence of events then occurring in the right heart is similar to that described above for the left ventricle, being brought about by the added work thrown on the right heart by the engorged pulmonary system.

The backing up of blood in the pulmonary vessels incident to left heart failure will result in an increased quantity of blood in the lesser circulation. Unless the total blood volume increases, this will produce a relative deficiency in the amount of blood in the systemic vessels. It is not surprising, therefore, that determinations of total blood volume as introduced by Rowntree and carried out by a number of subsequent investigators have shown an increase in patients with heart disease. The redistribution of blood, by which a larger fraction of the total volume is held in the vessels of the lung, is compensated for by an increase in total volume which maintains a normal quantity in the systemic vessels. If right ventricular failure is superimposed upon that of the left heart, there will be a still further increase in total blood volume to compensate for the blood then accommodated by the engorged systemic venous system. The increase in the total amount of circulating blood will tend to aid exchange in the capillaries by maintaining at a normal level, or even increasing, the total amount of blood in these vessels. As might be anticipated, blood volume decreases when the circulatory function of the patient improves following the administration of digitalis.

The dyspnea which is commonly the first symptom of left ventricular failure well deserves further consideration, although a final evaluation of the mechanisms concerned in the production of dyspnea is impossible. A number of theories have been advanced, none of which is established at present. Since cyanosis is frequently present during attacks of so-called "cardiac asthma," earlier clinicians quite logically interpreted the dyspnea of cardiac disease as being the result of deficient gaseous exchange in the lungs. The retention of carbon dioxide and deficient oxygenation so produced are well known to be adequate stimuli for the production of labored breathing, and are undoubtedly a major factor in many cases. Peters, Barr and Peters, and Campbell and Poulton have consistently found an increase in the CO_2 tension of arterial blood in the dyspnea resulting from decompensated heart disease; the well known efficacy of oxygen therapy in cardiac dyspnea offers further evidence that deficient gas exchange is a major factor. Inability to eliminate carbon dioxide from the blood and absorb oxygen can be readily accounted for on the basis of the congestion produced in the pulmonary vessels by left heart failure. Increased pressure of blood in the lung capillaries must result in actual or latent edema of the lungs. This, plus the vascular congestion, accounts for the decrease in vital capacity which is almost uniformly present in the patients. In the face of these limiting factors the decompensated patient commonly exhibits an elevated metabolic rate; he thus requires more oxygen and eliminates more carbon dioxide. It is, therefore, not strange that dyspnea supervenes.

But further studies upon the subject have demonstrated beyond question that this mechanism alone will not explain all instances of dyspnea occurring in cardiac patients, even during decompensation, for Harrop, Meakins et al, and Scott have found the carbon dioxide tension and oxygen saturation frequently normal. Nor is there often a decrease in the pH or in the alkali reserve of the blood. Evidently, therefore, dyspnea may occur without any of those changes in the blood constituents which act as direct stimulants to the respiratory center. It is quite possible, however, that analyses of arterial or mixed venous blood from the dyspneic patient may not be adequate to reflect rapid changes in the blood which is supplying the respiratory center. One group of investigators has, therefore, postulated that dyspnea in the absence of demonstrable changes in the blood chemistry may be due to deficient blood supply to the respiratory center, secondary to a diminished cardiac output. Such a decrease in medullary blood supply might induce a local increase in the carbon dioxide tension of the fluid bathing the respiratory center and thus constitute an effective cause of dyspnea. However, it has thus far been impossible to demonstrate conclusively that such local changes occur. A third theory, sponsored especially by Harrison, points out that sensory nerve impulses producing reflex changes in respiration may affect the respiratory center even more strikingly than does an increase in the carbon dioxide tension of the blood. Such reflexes may arise from distension or engorgement of the pulmonary vessels, or from an increase in pressure within the right auricle.

It seems probable that all of the above factors may, at various times and in different patients, be active in the production of labored respiration. Whichever of them is the chief primary factor, we must recognize that the decrease in available lung volume or vital capacity which is a constant feature of even slight failure of the left ventricle predisposes to the appearance of dyspnea. It has been demonstrated that the air exchange of the compensated cardiac patient is increased even when at rest, because the decreased vital capacity requires a greater total ventilation in order to bring a normal quantity of atmospheric air to the surfaces of the alveoli. Although vital capacity itself is not sufficiently well correlated with surface area to serve as an absolute index of the degree of impairment of the pulmonary circulation, it is, in the absence of other pathologic changes, highly suggestive. Lewis has pointed out that, "of the numerous tests of cardiac efficiency and inefficiency that have been devised * * * there is none that approaches in delicacy the symptom of breathlessness."

SYMPTOMS INCIDENT TO FAILURE OF THE RIGHT VENTRICLE

Since severe impairment of the function of the left ventricle cannot long exist without the occurrence of compensatory hypertrophy and relative valvular insufficiency in the right heart, and because pathologic changes are rarely limited strictly to one chamber, we cannot separate patients into arbitrary groups, saying that these have left ventricular disease and those have failure of the right chamber of the heart. But in a discussion of the physiologic bases for symptomatology it is convenient to assume that they can be so separated. We all know that primary right heart failure is much less common than that of the left ventricle, but frequently develops superimposed upon left ventricular disease. If right sided failure is primary, the same train of phenomena occur which we have already discussed with reference to the left ventricle. The diseased chamber fails in its function of expelling blood. Venous pressure, therefore, rises until the increased filling and increased initial tension may, provided the pathologic changes are not too severe, so augment the output per beat that in the presence of an increased rate the minute output is maintained at a normal or low normal level. It is important to recognize that the maintenance of such an increase in venous pressure is essential for the functioning of the diseased heart.

With the exception of those which may result from embolism or thrombosis, it is safe to say that the majority of symptoms arising as a result of disease of the right heart are due to the increased systemic venous pressure or, if the ability of the heart to perform its work is too greatly decreased and the cardiac output reduced to a value below that which is essential for the normal blood supply of the tissues, to increased venous pressure plus the deficient blood supply and consequent inadequate exchange of oxygen, food materials and metabolic products. It is known, however, that an increase in venous pressure is one of the earliest phenomena accompanying congestive heart failure.

Edema. A discussion of all of the mechanisms entering into the production of cardiac edema would require more time than we can afford. But we may recall the mechanism of fluid exchange between the capillaries and tissue spaces which was originally suggested by Starling, who pointed out that the osmotic pressure of the blood proteins is almost exactly balanced by the average pressure of the blood in the capillaries. Since the capillaries are, in their normal state, almost completely impermeable to protein, the albumin and globulin of the blood exert a substantial osmotic pressure, the albumin being most important in this respect. This pressure amounts to about 22 to 30 mm. of mercury. The recent most accurate direct measurements of the blood pressure in the capillaries have yielded similar values, being somewhat higher at the arterial and of the capillary and somewhat lower on the venous side. Since capillary blood pressure tends to produce a filtration of fluid through the capillary wall into the tissues, and since the osmotic pressure of the blood proteins tends to draw fluid into the capillaries, we find in the normal state an almost perfect balance of forces. This maintains the amount of tissue fluid at an optimum level. The disturbing factor introduced by the presence of heart disease is an increase in capillary pressure. This is produced by the rise in venous pressure to which we have referred. When the pressure in the veins, as measured clinically by the usual methods, rises much above 10 cm. of water the concomitant increase in capillary pressure becomes enough to counterbalance the osmotic pressure effect of the blood protein, fluid leaves the capillaries more rapidly than it is reabsorbed, and edema occurs.

This concept has provided us with a simple explanation for the edema of heart disease which appears to agree well with experimental and clinical findings. Unfortunately, no phenomena of the human body appear to be explainable in quite such simple terms. In the final analysis we must consider the effects of the various ions (sodium, potassium, calcium) and of salt concentration, the influence of capillary permeability and changes in blood protein concentration, the resistance of the tissues to distension which provides a limiting factor when edema occurs rapidly, and the function of the kidneys. In severe grades of cardiac decompensation there is a tendency toward a reduction in plasma protein concentration which increases the difference between capillary blood pressure and protein osmotic pressure, and, therefore, tends to aggravate edema. Anoxemia, such as may occur with a deficient cardiac output, increases the permeability of the capillary walls and permits the leakage of fluid containing protein into the tissue spaces; when the capillary filtrate contains protein, the osmotic pressure gradient across the capillary wall is obviously reduced and the filtration of fluid from the capillary increased. Potassium appears to have a specific effect in decreasing the ability of the tissues to hold water. This is true at least in comparison with sodium, which tends to aggravate edema. Finally, a failure in kidney function with inability to eliminate ingested fluid, whether it be primary or secondary to the anoxemia and decreased blood flow incident to heart disease, will increase the total water content of the body.

THE EFFECT OF MECHANICAL ABNORMALITIES OF HEART BEAT

Although the arrhythmias are commonly an expression of cardiac pathology which involves the myocardium, of themselves and apart from concurrent changes in the cardiac muscle they affect the work of the heart and, therefore, its function solely by their influence upon heart rate or the normal orderly contraction sequence. As has been shown above, the rate of the heart is an important factor in its efficiency. One of the primary effects of certain arrhythmias is to decrease cardiac efficiency by increasing heart rate. A preliminary consideration of the mechanisms by which heart rate is normally controlled may, therefore, be of value.

It is well known that the rate at which the sinoauricular node (the pace-maker of the heart) generates impulses is under the influence of the vagus and sympathetic nerves. The vagi exert a constant and tonic influence on rate. When they are cut the heart will beat about 130 times per minute. The sympathetics are also in tone, but their effect is much less marked; they are useful chiefly in increasing the rate during periods of stress. Heart rate can be increased by a lessened vagal activity or a greater activity of the sympathetics; rate can be decreased only by an increase in the activity of the vagi. Both vagi and sympathetics are influenced markedly by impulses brought to the medulla by way of sensory nerve fibers which act upon the cardioinhibitor and cardioaccelerator centers there. The former center is well defined; the existence of the latter has been questioned. Reflexes affecting heart rate may be classified as homeostatic and general, the homeostatic having to do with the maintenance of equilibrium within the cardiovascular system, the general being such reflexes as bring about a response to pain, to cold water upon the skin, to fright and to a variety of other factors.

The homeostatic reflexes are the more important, since they act constantly and not occasionally, and are concerned primarily with maintaining constant values of venous and arterial pressure. The sensory pathways for these reflexes have their origins within the cardiovascular system. The best known is the reflex which involves the depressor nerve fibers which arise from the arch of the aorta. In man and most other animals these fibers ascend to the medulla with the vagus. They are stimulated by an increase in aortic pressure, and the impulses which they transmit to the medulla bring about a reflex decrease in heart rate and vasodilation. They will thus immediately compensate for any factor which tends to cause an increase in arterial tension and will act to keep the blood pressure at a constant level. Other sensory fibers arise from the great veins and from the right auricle. These are stimulated by an increase in systemic venous pressure and act to increase heart rate. They were first described by Bainbridge, and this mechanism for maintaining a constant venous pressure is often referred to as the Bainbridge reflex. Within the last few years it has been found that a third group of sensory fibers arises at the bifurcation of the carotid, from a structure termed the carotid sinus. These fibers were first studied by Heymans, whose work has since been amply corroborated.

A fall in pressure in the region of the carotid sinus sets up a reflex which results in an increase in heart rate, while an increase in carotid pressure reflexly decreases heart rate. Vasomotor and respiratory effects are also produced by stimulation of the carotid sinus. It has long been known that pressure over the carotid in the neck will slow the heart rate, and will often produce a normal rhythm in the patient with paroxysmal tachycardia. It was originally believed that this effect was due to pressure on the vagus, but we now know that the structure stimulated by such pressure is the carotid sinus. It responds to external pressure just as to an increased blood pressure; vagal inhibition is greatly increased and the heart rate slowed.

The arrhythmias are essentially phenomena due to disturbance of the conduction mechanism or to the presence of hyperirritable areas from which abnormal impulses arise. They may be placed in groups according to whether they increase or decrease heart rate or interfere with the normal coordination of the beat; some affect both rate and coordination. Heart rate is increased by auricular flutter, auricular fibrillation, and paroxysmal tachycardia, fibrillation being also a disturbance of coordination. The significance of the increased rate of the diseased heart, as indicated previously, is that it decreases cardiac efficiency and, therefore, increases the oxygen requirement. Those arrhythmias that are accompanied by an increased rate thus place an additional burden upon the heart which may precipitate decompensation in the border-line case. With extremely rapid rates, such as may be encountered in paroxysmal tachycardia, the ability of the heart to pump blood is seriously handicapped, the cardiac output may decrease, and the tissues suffer oxygen want. This is because an increase in rate is accomplished at the expense of the period of diastole, which is shortened. The length of systole is slightly, if at all, decreased. In extreme cases diastole may be almost abolished. Shortening of diastole interferes seriously with the filling of the ventricles. The most rapid period of filling occurs early in diastole, but blood continues slowly to distend the ventricles during this entire period.

With rapid rates the decreased time permitted for filling may be compensated for to some extent by a more vigorous auricular contraction and by more rapid ventricular relaxation. But it has been shown that when the heart rate increases to much above 150 per minute, filling is so hampered that the effect of the increased rate is offset by a decreased output per beat, and with higher rates the output of the heart per minute will actually become less. This is well illustrated by the case of paroxysmal tachycardia studied by Barcroft, in which the cardiac output during the attack fell from 5.6 to 2.5 liters per minute, and output per beat from 77.5 to about 15 cc. It will be noted that cardiac output was decreased to 45 per cent of its normal value, while stroke volume fell to but 20 per cent of the original level. The heart rates of normal, athletically trained individuals will seldom rise above 150 during severe exercise, showing that the regulatory mechanism maintains conditions at the optimum for increasing cardiac output.

Another serious aspect of fibrillation, which applies also to those cases in which extrasystoles are extremely frequent, is the inefficiency of a large number of the contractions. When the ventricular rate of the fibrillating heart is rapid and there are many frustrane ("dropped") beats, the heart is wasting its resources. The frustrane beats have followed the preceding contraction by such a short interval that there has been no time for ventricular filling and consequently they expel but little blood. Yet the nutritional requirement for such a beat is not negligible; they have been referred to as "luxuries which the damaged heart can ill afford."

There is still much discussion as to the underlying cause of auricular fibrillation and flutter. No theory that has been advanced appears to explain the observed facts as satisfactorily as that originally suggested by Mines, and elaborated by Lewis. This theory suggests that, if the refractory period of the auricular musculature is sufficiently reduced, an abnormal impulse conducted over the auricle may, upon returning to the point from which it arose, find that region able to contract again. Such an impulse would then travel for an indefinite period in a circuit through the auricular muscle. The hypothetical phenomenon of this type occurring in the heart has been termed a *circus movement*, and it has been demonstrated that such a circus movement can actually be set up in an isolated ring of muscle from the amphibian heart.

Abnormal mechanisms with slow heart rate. Bradycardia is present in sinoauricular block and complete block of the A-V node or the bundle of His. When, because of interruption of the cardiac impulse in the bundle, the ventricles are called upon to establish their own independent rate, the frequency of contractions will be much decreased. The extent of the decrease is likely to depend upon the time required for the block to develop. When the interference with conduction between auricles and ventricles occurs abruptly, the ventricles may not immediately begin to contract with a frequency that is sufficient to maintain an adequate cardiac output; in fact, following an abrupt onset of block there is likely to be a period during which there is no ventricular contraction. This is one cause of the Stokes-Adams syndrome. If the onset of block is gradual, giving the ventricles opportunity to accustom themselves to the task of initiating their own rhythm, the ventricular rate is not likely to fall at any time below 30 per minute. It has been stated that in most individuals a decrease in rate down to 30 per minute may be compensated for by an increased stroke volume, so that cardiac output is not dangerously reduced. With slower rates the circulation is apt to become inadequate for the needs of the body. The total failure of ventricular contractions following abrupt and complete block of the bundle is especially dangerous. Absence of ventricular contractions for 5 seconds is likely to result in loss of consciousness. After 15 seconds convulsions, cyanosis and respiratory abnormalities may be present; death results within 1½ to 2 minutes.

Abnormal mechanisms producing incoordination. Abnormal types of cardiac contraction are present in A-V rhythm, complete block, bundle branch block and extrasystoles originating anywhere except at the S-A node. In most instances the incoordination so produced does not appear to interfere seriously with cardiac function. Loss of the efficacy of auricular contraction is, of course, present whenever the impulse for contraction originates below the auricles. But because (except with rapid heart rates) the filling of the ventricles is accomplished chiefly by the venous-ventricular pressure difference, cardiac output is not likely to suffer greatly. If extrasystoles occur in showers in the presence of a diseased myocardium, an extra burden is placed upon the heart, since premature contractions like many of the beats occurring in auricular fibrillation are inefficient in expelling blood.

ABRUPTIO PLACENTAE*

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Abruptio placentae, ablatic placentae, apoplexy of the placenta or premature separation of the placenta presents a serious question in diagnosis but equally significant, perhaps even more important, is the judgment used in the handling of the situation. The child is already dead; the mother's life hangs on the fine thread of medical judgment based on symptoms oftimes rather insignificant in appearance. However, if that judgment be wrong, death surely takes the mother.

The term "abruptio placentae" I am applying to those instances of complete premature detachment of the placenta as compared with partial, where the baby may be delivered alive. In the latter instances, the fact that the baby is not instantly killed is evidence of a small and probably increasing detachment of the placenta, the progression of which is so tardy that labor and delivery may supervene and the baby live. No further comment is to be made on this variety.

I am considering only that variety wherein the mother has no previous discomfort, little or no history of toxemia. She may be asleep in bed, is awakened by a sharp stabbing pain, fetal movements very active and cease shortly. Or she observes nothing, indicating, as seen from subsequent events, that that disturbance was the announcement of at least sufficient detachment to cause fetal death.

Several years ago, while visiting a prominent New York hospital, I was invited to the morgue to observe an autopsy on a young woman who had been delivered the night before. She entered the hospital the previous afternoon in labor. The diagnosis was abruptio placentae. The visiting obstetrician advised accouchment force and administered the same, delivering her of a dead baby. Then she had begun to bleed so persistently that the situation became alarming. She was given 1000 cc. of normal saline intravenously and blood donors secured. As her hemorrhage continued she was given 1000 cc. of blood from one or more donors, but the hemorrhage did not cease and she expired. The impressive point in this autopsy was the very marked infiltration of the entire uterine wall with blood and especially the completely thrombosed condition of all the blood vessels leading to the uterus from either side into the broad ligaments, also very plainly not produced by any forces that may have been applied during delivery.

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Later the same day another hospital was visited. Curiously, a case with a similar history was presented me. This time, in the visiting obstetrician's judgment, a section should be performed. A similar thrombosed condition was exposed and a Porro section performed with the result that the patient was doing well. It has proven to be a valuable comparison.

Fortunately, this serious situation confronts the average practitioner but seldom. Among the last 2,500 deliveries in private practice covering over nine years, only five instances have been encountered.

Case 1. Mrs. H., a multipara, had passed through a normal antepartum period with twins. The first child was born spontaneously. While awaiting the advent of the second, the mother suddenly expressed the placenta with the cord of the second child attached, together with massive blood clots. This twin was delivered stillborn. This is really an instance of accidental detachment of the placenta, and not at all comparable to the true abruptio type, caused by a latent obscure toxemia with serious import and destruction within the uterine muscle.

Case 2. Mrs. C., a multipara, had a normal gestation period and was within one month of delivery. She was awakened at 4:30 a.m. by severe abdominal pain lasting about ten minutes. Then she went to sleep again but was reawakened by severe pains at 5:30 a.m. She was seen at 6:30. Her uterus extended to her costal margin. It was rigid as in tetanic contraction. No fetal heart tones were heard and the uterus was so rigid that no outlines could be descried. Diagnosis, abruptio placentae.

She was sent to the hospital at once. W.b.c. was 19,600, hgb. 45 per cent, pulse 60, blood pressure 132/80. Catheterized specimen of urine showed 4+ albumin, no casts. Vaginal examination revealed cervix to be long, rigid, unopened. Blood followed this examination.

A classic cesarean was performed. On entering the midline of the uterus, the placental site was invaded, making it possible to observe carefully the damage the uterus had suffered. The placenta was completely detached. It was lying loosely with the baby and large clots in the cavity. The entire thickness of the uterine wall was bluish black with clotted blood. Since this condition appeared to obtain only over the area of placental attachment, and the rest of the uterus and adnexa were not at all involved, it was decided that the uterus could recover during involution (fig. 1). The uterus was closed as usual. This judgment has been upheld by the fact that this girl has had two subsequent pregnancies and live deliveries.

Case 3. Mrs. L., para II. Her date of confinement was the middle of February, 1934. Her antepartum experience was normal. On January 2 she was awakened at 12:30 a.m. because of sharp abdominal pains which were continuous but not of such severity that she should enter the hospital, and then they seemed irregular. As the pain became constant she went to the hospital at 5:30 and was first seen at 10 a.m.

She was then rather restless, in constant but not very severe pain, pulse 84, blood pressure 150/90. A trace of albumin and no casts in her urine. The uterus rose right up to her costal margin and was of a ligneous feel. No fetal heart tones nor delineaments were made out. The right side of the uterus she complained of as more sore and later was ascertained to be the placental site. Vaginally, the cervix was long, admitting two fingers. There was no blood.

Abdominal section revealed the dark uterus before entering through the peritoneum, and the thrombosis of the mottled uterus extended into the broad ligaments on both sides. A Porro was done with an excellent recovery (fig. 2).

Case 4. Mrs. G., a multipara who within a short time of her expected confinement was seized with sudden pain early one morning. Her attending physician considered her to be in labor. As she had made no progress twenty-four hours later, she was sent twenty miles to the hospital, entering about thirty-three hours after the onset of pain. At that time she had 101.8° temperature, pulse 106, resp. 24.

She was visited first about two hours later. She was not in very much distress, but the striking point of the picture was her enormous abdomen and woody feel to the uterus. No fetal heart tones and no fetal parts were distinguishable. By vagina, the cervix was found long and closed, no blood adhered to the examining glove. Diagnosis, abruptio placentae.

The abdomen was opened in the midline. Before incising the peritoneum, the black uterus was easily seen through these tissues. At least 600 cc. of serosanguineous fluid was encountered free in the abdominal cavity. The uterus, the tubes, the ovaries and the broad ligaments were so dark that one would almost consider them gangrenous. In doing the Porro, these tissues were so friable that it was difficult to tie off the thrombosed vessels and feel the ligatures would not cut completely through. The thrombotic picture was so complete that had she been delivered from below it is difficult to conceive how she could have hemorrhaged, although of course, death was sure from the thrombotic situation. As it was, she made an uneventful recovery (fig. 3).

Case 5. Mrs. A., twenty-two years of age, para III. Weight 180+. She was awakened at 5:30 a.m. because of pain on her left side. Her back ached a good deal but not badly. Although she telephoned stating it was unnecessary, I visited her at 11:30. The uterus was stony hard, rather tender all over, extending to the costal margin, no bleeding. Diagnosis, abruptio placentae.

She was sent to the hospital. There were no fetal heart tones. Examination showed three fingers dilatation and the cervix soft. I ruptured the membranes to see if she would deliver herself. Labor appeared to progress normally and she delivered herself spontaneously about three hours later. Baby, placenta and about 800 cc. of loose blood clots cascaded out. The mother's pulse was 84, the uterus contracted down well.

Ten minutes after the delivery, the picture changed. Her pulse was 120, in a few moments 140-160 and thirty minutes after delivery 180 and remained so till death a few hours later. Her uterus remained contracted and flow was about normal. Later a persistent seepage occurred, accounting for 400 cc. of blood during the second hour. She was given one liter of 10 per cent glucose, also a blood transfusion, but her condition remained the same. She complained bitterly of intense uterine pain, as is experienced in mesenteric thrombosis. Three-fourths gr. of morphine did not control her pain. The 400 cc. of blood were conserved in order to determine when it would clot. None formed within two and one-half hours when it was discarded by mistake. An autopsy was refused.

There are five very striking points in this case: (1) Onset sudden but not much pain, (2) no bleeding, (3) no sign of serious import till ten minutes after delivery, (4) blood did not clot.

CONCLUSIONS

1. Shock so progressively occurring within thirty minutes after delivery could not be attributed to hemorrhage. The 800 cc. of blood had been lost

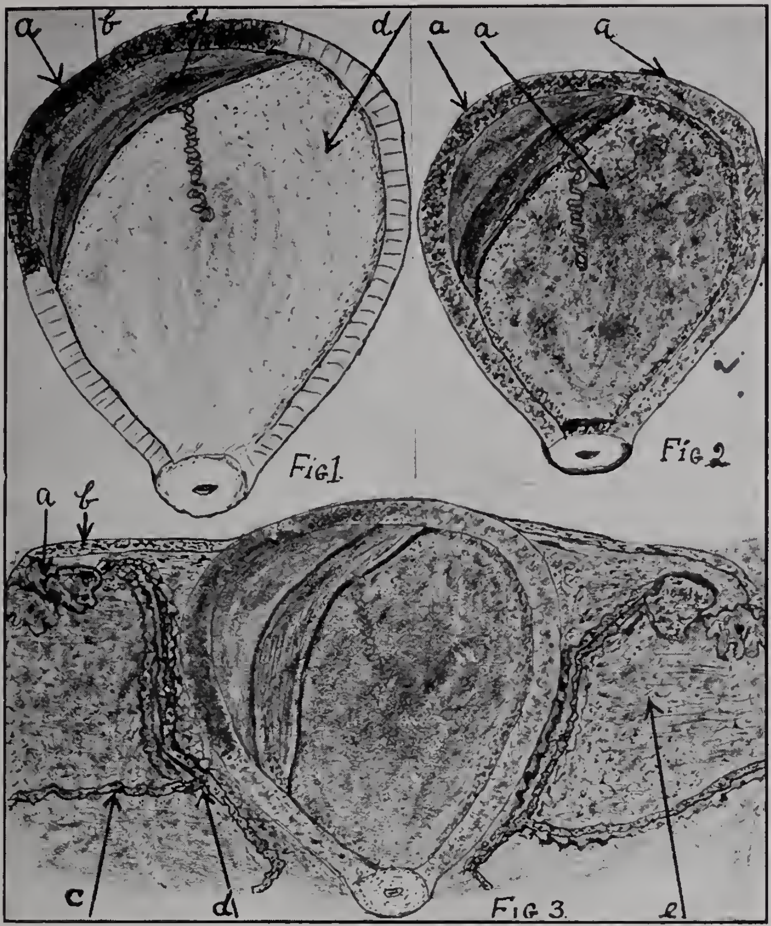

Fig. 1. Early abruptio placentae with complete separation of placenta and concealed hemorrhage. (a) thrombosis of placenta site, (b) concealed hemorrhage, (c) detached placenta, (d) normal uterine tissue.

Fig. 2. A few hours have elapsed. Infarction of uterine wall not now confined to placenta site but extending throughout uterine wall in certain areas but not into uterine adnexa. (aaa) infarction of uterine wall as well as placenta site.

Fig. 3. Several hours after onset with complete thrombosis of all vessels to and from uterus, and of all tissue structure adjacent to uterus. (a) ovary thrombosed, (b) thrombosed tube, (c) uterine artery thrombosed, (d) plexus of veins and arteries in broad ligament thrombosed, (e) thrombosed broad ligament.

hours before delivery and she was not inconvenienced in the least.

2. The unusual pain was similar to what one sees in mesenteric thrombosis, but she did not have the pallor or crushing shock.

3. There was a toxin upsetting the clotting elements in the blood and the same one which caused her death.

4. It had been elaborated in the uterus before delivery. After delivery, the contraction of that organ expressed overwhelming quantities into the blood stream resulting in death. This toxin has been repeatedly suggested by different authors to be histamine.

5. The entire picture is one of a latent toxemia causing abruptio, and death to the baby, toxic or asphyxia, and then in itself or in chemical union with clotting elements of blood producing a lethal effect on the mother. Had she had a cesarean, for she was in excellent condition, undoubtedly the uterus would have been found badly involved. A Porro would have saved her life.

All authorities agree that in abruptio placentae the uterus should be emptied at the earliest moment; they also agree that the method of delivery should be determined by the condition of the cervix, that accouchement force should never be employed. If the cervix is opening and progress appears normal, whether hemorrhage is apparent or concealed, they suggest that it is proper to rupture the membranes and allow a spontaneous delivery or use forceps after cervical dilatation. Following that advice, Mrs. A. lost her life.

There are certain interesting facts common to four of these cases:

A, history: (1) all multiparae, (2) prenatal course was normal, (3) seized with severe abdominal pain while asleep and toward morning, (4) pain constant but of insufficient severity to make the patient request relief.

B, symptoms: (1) ligneous uterus, (2) no fetal heart tones, (3) no fetal outlines, (4) no bleeding or but little, (5) absence of shock even in the one of thirty-six hours duration.

The pathology of this condition is interesting. All attention centers on the placental site; in gross, the uterus is mottled in appearance, a hard mass, almost gangrenous. In its entirety or in sections it is infarcted, regardless of the placental site. These infarcts are not confined to the uterus but extend out into the broad ligaments not only on the side of the placental site but on both.

In the instance of case number two, early operation shows infiltration only over placental site, therefore, not a general infarction of uterus with resultant placental detachment. The early operation apparently arrested the progression.

The uterine muscle is not only infiltrated but the cut uterine veins do not collapse. They are filled with clotted blood to the pelvic wall. To go into this more minutely, the question arises, "Does this process originate and progress from the uterus or the plancenta?" Several, if not most authorities, feel it originates in the latter. If that were true, then one would expect the process to stop as soon as the placenta was entirely detached. From that point on there is absolutely no connection between the placenta and uterine wall and one would not expect a toxin generated or generating in the placenta to pass through the clot and continue the destructive process in the uterine wall and adjacent parts, especially the opposite side of the uterus and the opposite side of the pelvis. This process apparently is a progression, as number two with her early operation revealed involvement of the placental site only.

Number four, with an operation still longer after onset, showed more involvement and number three sectioned thirty-six hours subsequent to first symptoms showed complete involvement of all pelvic structures. Consequently, I am led to believe that these and other cases studied suggest the toxin to be uterine in origin for the above stated reasons and also because a Porro operation apparently is followed by a cessation of symptoms, although case number two with slight involvement made as good a recovery.

The histology as described in one textbook is that hemorrhages occur about the periphery of the small or moderate caliber veins with dissociation of muscle fibres probably due to a toxin. Histamine has been suggested. None of my cases had any suggestion of toxemia as generally understood before the onset. However, our usual methods of detection only embrace kidney failure or toxemias as evidenced through approaching eclampsia, but we have no other routine method for detecting any infinitesmal unusual toxemic warnings of gigantic import.

CONCLUSIONS

1. Abruptio placentae is the result of a toxin which not only detaches the placenta, destroying the baby, but which also may cause the death of the mother.

2. Abruptio placentae is affected by a toxin which, on the one hand, brings about infiltration of the uterine muscle with blood clots and thrombosis of veins, but, on the other hand, has some subtle effect whereby escaped blood will not clot.

3. The origin of the process is in the uterus or placental site, this process being progressive, extending throughout the uterus and adnexa.

4. There is no method of determining the extent or progress of infiltration.

5. When the uterus is of stony consistency, no fetal heart tones, no fetal outlines to be made out, and several hours have elapsed since the onset, abdominal section should be done, regardless of the condition of the cervix. After emptying the uterus, further procedure should be guided by the pathology present.

PEPTONE BROTH IN PERITONITIS

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Several substances have been used in recent years to combat peritonitis, the most potent cause of mortality in abdominal surgery. Among these are vaccines,[1] amfetin,[2,4,5] glucose,[3] sodium ricinoleate, saline, etc. We wish to report forty-three consecutive cases of peritonitis during the past two years treated with peptone broth at operation, with one death. Some of these cases were reported previously.[6]

Forty cases were ones with pus due to a perforated or gangrenous appendix. The appendix was removed in all but two. Three were cases with infected fallopian tubes where the neisserian organism was found in the pus. The forty-two cases had an uneventful recovery except in one child, where bronchopneumonia developed from a respiratory infection present at operation and two cases had a mild ileus. There were some wound infections around the site of the drainage tube, but all were easily controlled and cleared by using the broth locally. There is no case of incisional hernia and all have an excellent scar.

The average stay in hospital was under twelve days. As a rule the pulse and temperature were normal by the fourth and fifth postoperative days. Drainage tube was out by the sixth day. The incisions were healed well under fourteen days. Convalescence in practically all cases was uneventful. Intravenous fluids were used as a rule for the first day or two. No laxatives were used, but mineral oil was given. Most cases had a small enema on the fifth day when regular diet was allowed. The ages ranged from three years to sixty-nine years. The time of operation was from twenty-four hours to one week following onset of illness.

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[1] Herrmann, S. F.: Experimental Peritonitis and Peritoneal Immunity. Arch. Surg. 18:2202-2215, May, 1929.

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The one case which died was recent. A girl, age ten, with influenza of four days duration developed a perforated appendix with acute spreading peritonitis. Operation was done in twelve hours under nitrous oxide and local anesthesia. The postoperative course was stormy and death occurred on the fourth postoperative day from a generalized infection. Postmortem was unobtainable. The cause of death may not have been in the abdomen.

We have also used broth in fifteen markedly acute appendix cases, where there was free fluid but no visible pus, with apparent benefit. It has been of great help in all infected or potentially infected operative wounds and in infections generally, including ulcers, mastoids, dental operations, etc. We have used it with good effect as a prophylactic against infection in a full thickness skin graft, in tendon suture cases and in perineal repairs. It has given good results used in two cases of eczema.

The material is easily obtained and prepared.* It is stable and can be kept in any climate. It is inexpensive. Thoroughly sterilized, the prepared broth will keep a long time in a refrigerator. We have not seen any reaction or adverse effect. We are investigating the possibility of using the broth as a preoperative peritoneal cavity sensitizer and hope to be able to report further on its uses. We presume it acts by stimulating reticuloendothelial cells, especially in the omentum.

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*Difco Bacto Nutrient Broth dehydrated (Difco Lab., Detroit). Eight grams in 1000 cc. distilled water. Add 8 grams pure sodium chloride. Autoclave or sterilize in pressure cooker in screw top medicine bottles

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Clinical Experience With Protamine Insulinate. Howard F. Root, Priscilla White, Alexander Marble and Elmer H. Stotz, Boston (*Journal A.M.A.*, Jan. 18, 1936), state that preliminary observations in fifteen cases have in general confirmed the observations of Hagedorn and his associates regarding the protamine insulinate that has been developed in their laboratories. Presumably by slow breakdown of the compound in the subcutaneous tissues, a blood sugar lowering action is secured which is evener and more prolonged than that which follows regular insulin. Because of this, wide fluctuations in blood sugar level are less apt to occur and hypoglycemic reactions can be largely avoided. The new preparation is still in the experimental stage. Further work both in insulin laboratories and in diabetic clinics will be necessary to determine when, how, and in which patients protamine insulinate or some related compound can be best used.

FRACTURES OF THE PELVIS*

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Fractures of the pelvis are best classified as follows:

1. Those that involve the ring: (a) at one point of the circumference, (b) at two or more points of the circumference without displacement, (c) at two or more points with displacement upward of one side.

2. Fractures that involve bones entering into the formation of the ring, but the ring remaining firm and unbroken, i.e., the iliac crest or wing, the spine of the ilium, the tuberosity of the ischium, and the sacrum below the sacroiliac articulation.

3. Acetabular fractures: (a) involving the rim, (b) involving the three segments, (c) perforating.

ETIOLOGY

Some great force is always necessary to produce a fracture of the pelvic ring, because this structure is strong and elastic. Prior to the age of rapid transit, falls from a height, crushing between logs or heavy bales of goods were the common causes of this injury. At the present time crushing between railroad cars, trucks or automobiles are the major causes, although there are many cases on record of individuals who have sustained pelvic fractures while riding in closed cars, when there have been collisions and the occupants have been thrown violently together, either by the force of the collision or by the overturning of the vehicle. The injured individual in this type of accident seldom remembers the exact type of force that caused his injury. However, Malgaigne records a case of a fall from a height upon an extended limb which caused a fracture dislocation upward of the same side of the pelvis.

In isolated fractures of the anterior superior spine, the crest or the wing of the ilium and avulsions of the ischial tuberosity, an exact history may be obtained. Blows or kicks upon the perineum, falls across a fence or rail or on the tongue of a wagon are frequent causes of fractures of the inferior rami of both pubis and ischium. On the whole, the average individual with a fractured pelvic ring has other serious injuries, and the patient with multiple injuries must always be examined for a fractured pelvis and the visceral complications that so commonly accompany this lesion.

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* From the Wards of Cook County Hospital.

* Read before the Forty-third Annual Meeting of Idaho State Medical Association, Boise, Ida., Sept. 9-13, 1935.

PATHOLOGY

Under this head we must first consider those fractures of the pelvic ring that most commonly occur. The pelvic girdle is most frequently broken through the bones forming the obturator foramen, and of these the rami of the pubis and the inferior ramus of the ischium are by far the most commonly involved. The superior ramus of the ischium is rarely injured in this type of pelvic fracture, but it is not uncommon to find bilateral fractures through both obturator foramina. These fractures through the obturator foramen may be the only ones present, but there may be a fracture through the posterior portion of the ilium or the sacroiliac joint or sacrum which accompanies this lesion and one entire side of the pelvis dislocated upward from one-half to three and one-half inches. This is called a Malgaigne fracture and is always very serious. The force necessary to cause it is so great that as a rule there is a high mortality in patients with this injury, due both to the fracture and to the other associated injuries.

The fracture line through the posterolateral portions of the pelvis may be associated with a separation of the symphysis pubis, instead of a fracture through the bones forming the obturator foramen, and may be associated with a more or less true sacroiliac dislocation. But these conditions are not very common. It is extremely rare to see a fracture alone or in any combination that extends up through the middle of the sacrum.

Fractures of the iliac crests are very common. Avulsions of the anterosuperior spine of the ilium or the epyphysis of the ischial tuberosity are uncommon. Fractures of the acetabulum are steadily increasing in frequency, both because more are recognized and because more occur. We are sure that they can best be considered by classifying them as follows:

A. Fractures of the rim.

1. An oblong fragment on the posterior lip of the acetabulum, essentially that portion contributed by the ischium in its development.

2. An oblong fragment, essentially that portion contributed by the ilium.

3. An oblong fragment, essentially that portion contributed by the pubic bone.

B. Fractures of the acetabulum involving one or two of the three bones of which it is formed.

1. Fracture with displacement inward and backward of the ischial segment and ramus.

2. Fracture with displacement inward of the pubic segment and ramus.

3. Fracture displacing both the pubic and ischial segments with rami.

4. Fracture with displacement inward and backward of the iliac segment.

C. Perforating fractures. In this type the head is forced through the bottom of the acetabulum with a very small amount of the surrounding bone.

D. A fracture so extensive that all of the bones are involved and fragmented.

The urethra and the bladder which lie in such close proximity to the pubic bones are very frequently injured and these complications may occur with fractures that have not required much force. The rectum is not often injured, but when it is the infections from it are so violent that they are usually fatal. The small bowel and sigmoid are less commonly involved. Injury of the greater blood vessels are not unusual and when present are frequently fatal. There is always a marked extravassation of blood in every pelvic injury, and this blood is nearly always extraperitoneal, sometimes extending over the lower part of the anterior abdominal wall, but many times there is free blood in the peritoneal cavity from an injury to the overlying peritoneum without any viscus having been injured.

SYMPTOMS

All individuals, whether conscious or unconscious, who have sustained a fracture of the pelvis, must be examined for other injuries. This procedure in the admitting ward will save many lives. Get the best possible history of the accident and the force involved, look carefully for the points of tenderness over the pubis, ischium, ilium and sacrum, because at times the patient is too benumbed to be cognizant of pain, but will react rapidly to pressure on a point of tenderness. If, however, the patient has a definite complaint of pain in a certain location, be sure not to belittle such a history because it is a most valuable symptom and will be of great aid in reaching a diagnosis.

Fortunately for the patient, but unfortunately for the surgeon who is endeavoring to make a diagnosis, the average individual with a pelvic fracture will complain only upon moving, being moved or upon having pressure applied over the area of bone injury. Careful palpation and inspection of the perineum are imperative in these cases and a rectal examination should be made with the finger carefully exploring around the inferior rami of the pubis and ischium and well up on the superior ischial ramus. The convexity of the sacrum can also be outlined with the finger in the rectum, but great care should be taken not to injure the rectal wall upon any sharp spicule of bone, because any perforation would free the violent pathogenic germs which are found in this segment of the bowel. Gas forming bacilli are commonly present in the lower bowel and, if these bacteria are freed into a large retroperitoneal hematoma, they may cause an infection that will be fatal.

The superior ramus of the pubis cannot be accurately palpated, but a marked point of tenderness with swelling and discoloration is very significant of bone injury. Rather large hematomata are common with injuries of the iliac crests and there are times when the evacuation of these great masses of blood by an incision will be of value. No drainage should be used. Deformities of the pelvis caused by crushing and displacement are very common, but they are not to be easily observed; they must be carefully sought for. Even when one pubic bone is dislocated up and over the one on the opposite side in an individual of moderate size, it does not cause an easily detectable deformity. The deformities caused by 1¼ to 2 inches of displacement of one side of the pelvis in a Malgaigne fracture have no great degree of visibility and must be carefully sought for by having the limbs parallel with the feet together before the examiner may be certain of the finding.

We make these statements in order that the surgeon may not take too much for granted after making a hasty inspection. Loss of function is variable in the minor fractures, but always present in a severe fracture and the individual is helpless so far as pedal locomotion is concerned. We have never been able to prove to our own satisfaction the presence of a simple subluxation of the sacroiliac joint.

GENITOURINARY SYMPTOMS

Small amounts of blood in the urine are very common in these injuries and may arise in kidney, bladder or urethra, and it is always an ominous symptom. Its origin must be determined as rapidly as possible, considering the degree of shock in which the patient may be. And it must be borne in mind that a severely shocked patient does not pass much urine. Be sure to note the continuity of the urethra and the amount and character of the urine that can be obtained from the bladder at the earliest possible opportunity. And be sure also to repeat the test at short intervals, if there be any doubt as to the extent of the injury. If a bladder has been ruptured, it is usually almost empty and blood is always present. If the abdominal wall is rigid, semi-rigid or very tender and the bladder contains only a little bloody urine, it is highly probable that the bladder has been ruptured and an exploratory operation is indicated at the earliest moment.

A diffuse tenderness and semirigidity of the abdominal wall may arise from an extravasation of blood in the properitoneal space, but a marked tenderness and rigidity of the abdominal wall, with scanty bloody urine, nearly always means either an intra- or an extraperitoneal rupture of the bladder. Occasionally, three to four ounces of urine can be obtained from a ruptured bladder, but it is not common, as the pressure of the abdominal cavity on the fundus of the bladder prevents the expansion of the bladder wall and the urine is thrown out freely into the peritoneal cavity or, less freely, into the properitoneal space. If extraperitoneal, the lower portion of the abdominal wall is swollen and boggy and not infrequently the scrotum in the male and the labia in the female are swollen and edematous. These findings may be corroborated by the injection of a sterile solution into the bladder and the amount that is recovered noted. If the entire amount of injected fluid is not recovered, it is evidence that there is an injury to the bladder wall. This is of value where shock is so marked that little if any urine is being secreted. Another procedure is the injection of air into the bladder and the use of the fluoroscope or the roentgenogram to determine whether the bladder is distended or whether the air is in the abdominal cavity. The objection to sterile solutions is that they may spread any infection that may be present. The objection to the injection of air is that in a certain number of cases there will be death from air emboli.

ACETABULAR SYMPTOMS

Fractures of the acetabulum of a minor type, such as of the rim without the involvement of a displaced segment, are extremely difficult to diagnose by physical findings. Fractures of either the pubic segment or of the ischial segment without marked inward displacement are also extremely difficult to detect by physical examination. Where there is a marked inward displacement or a central dislocation, the flattening of the trochanteric region, the limb on that side being of normal or increased length, the limitation of abduction and the extreme pain upon abduction or any other movement of the thigh, all are symptoms of great value. When these are aided by a rectal examination and a tenderness is discovered high up on the side of the injury, with more or less bogginess, due to extravasated blood and joint fluid, one can be almost certain of the condition present. But the final diagnosis must depend upon a very careful roentgenologic examination, with several plates taken from various angles.

DIAGNOSIS

The actual diagnosis of fractures of the pelvis is not difficult if the surgeon makes careful physical examination and checks this with roentgenograms, but the complications, such as the rupture of viscera and great vessels, will be the common cause of grave concern to determine the correct line of treatment.

PROGNOSIS

A research through the literature on fractured pelves disclosed a marked variation in the mortality statistics, but a careful analysis of the series presented revealed the cause of this discrepancy. In these cases where both clinical and postmortem diagnosis of fracture of the pelvis was made, there is shown a mortality of ten to seventeen per cent. Many cases of fractured pelves are overlooked under the vague clinical diagnosis of "internal injuries," such as ruptured kidney, ruptured spleen, ruptured viscera, etc., but an autopsy on these cases frequently reveals the true cause of death to be a fractured pelvis. Any patient with a fractured pelvis and injured viscus is in at least 5 per cent danger of death. The prognosis as to disability varies. As a rule the charity case with a fractured pelvic ring is in good condition at the end of four months or even less, but the industrial case, with medicolegal complications, averages six to eight months temporary total disability, with varying degrees of partial permanent, most of which is not permanent.

TREATMENT

The average fracture of the pelvic ring, involving the rami of the pubis and ischium with little or no displacement, will recover perfect form and function in twelve weeks. Five to seven weeks in bed without any particular dressing, and then up and around three to five weeks and back to any ordinary occupation. If the individual's occupation requires heavy labor, it will require at least sixteen weeks before he is able to return to work.

If there is a wide separation of the fragments the patient may be suspended in a sling (fig. 1). If this separation is in a muscular male, a broad, heavy band of moleskin adhesive below the crests of the ilium and over the trochanters of the femur may give adequate support with great comfort. But in a fleshy male or in the female an adhesive band is as a rule unsatisfactory, because its edges will roll up and irritate the skin. These cases may be suspended in a hammock attached to a Balkan frame. The supports of this hammock may be hung vertically or, if necessary, can be crossed above so as to

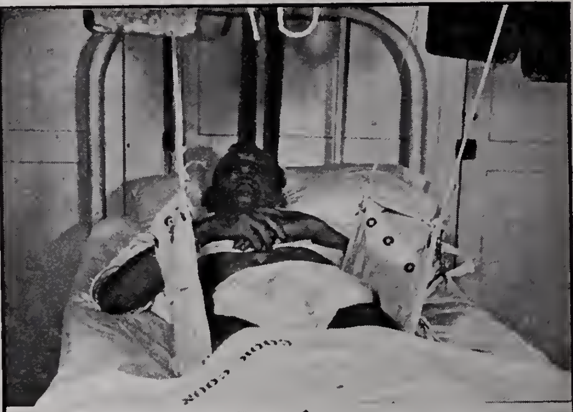

Fig. 1

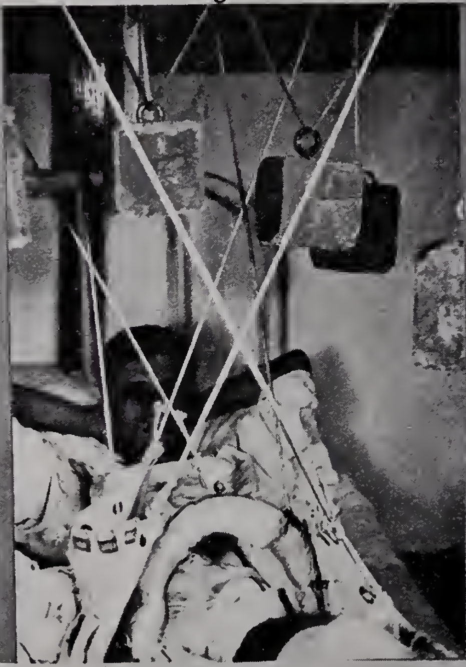

Fig. 2

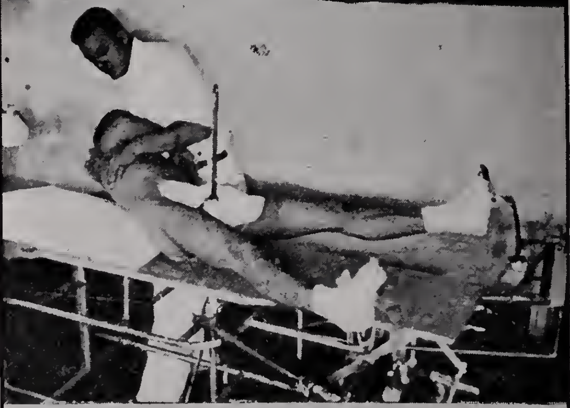

Fig. 3

Fig. 1. Fracture of pelvis supported in sling. Cross pull not necessary. In this manner elimination can be taken care of without pain, discomfort or disarrangement of fragments.

Fig. 2. Fracture of pelvis with separation of symphysis pubis; fracture of femur. Note cross pulls of sling to hold pelvic fragments together.

Fig. 3. A method that has been successful in reducing Malgaigne fractures that cannot be reduced with ordinary traction.

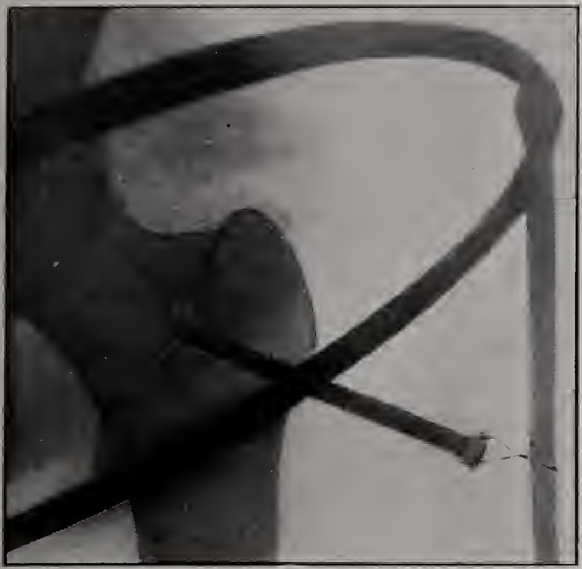

Fig. 4. Screw through femoral neck making direct traction on fractured acetabulum.

increase the lateral pressure upon the displaced fragments (fig. 2).

If there is a displacement upward of one side of the pelvis, a Malgaigne fracture, every possible effort must be made to reduce the displaced fragments into position. This may be accomplished by traction on the well limb, 50 to 75 pounds of weight being used with a counter pull through a belt beneath the opposite tuber ischii. If not successful, place on a Hawley table and make extension with the screw traction, with the firm side of the pelvis fixed against the center post, and make extension on the opposite extremity (fig. 3). We have succeeded in reducing one case of this type that was of ten days duration by fixing the limbs in the Hawley table and then making manipulations with the torso, abducting it from the injured side.

Avulsions of the anterior superior spine of the ilium or the ischial tuberosities are sometimes so painful that a replacement and fixation are required. Fractures of the crest of the ilium seldom require any type of treatment, unless it be the aseptic evacuation of a large hematoma. Fractures of the sacrum are best treated with rest and quiet, the prone position being the most comfortable. Dislocations of one pubic bone over the other are rare, but should be reduced by manipulations or open operation, as the pain and discomfort without reduction is sometimes very severe. True dislocations of the sacroiliac joint have not been common in our experience.

Fractures of the acetabulum should be accurately diagnosed and carefully treated, as they are the cause of very serious disability if not corrected. To abduct and extend the limb of the injured side will be sufficient to reduce most displacements if the treatment is begun early. In some cases a band around the thigh with lateral traction in addition to the longitudinal traction is sufficient. In others we were forced to drive a large screw into the neck of the femur and thus make adequate lateral traction (fig. 4). In other cases the head of the femur is driven through the acetabulum and the fragments act like dogs and lock the head into position so that an open operation is required to release the femoral head. It can then be held in position with longitudinal traction. All of these methods and means of care are necessarily to be adapted to the complicating conditions and there are times when these are so severe that they preclude any manipulation or extension. When in doubt about the rupture of an abdominal viscus, an exploratory operation should be made.

Addison's Disease Following Adrenal Denervation In a Case of Diabetes Mellitus. J. M. Rogoff, Chicago (*Journal A.M.A.*, Jan. 25, 1936), cites a case in which an attempt had been made to benefit a diabetic patient by denervating the adrenals. Addison's disease developed. The history indicates that this syndrome was superimposed on preexisting diabetes by surgical intervention with the adrenals. The surgical manipulations apparently resulted in occlusion of blood vessels and degeneration of the adrenal cortex. Of course the coexistence of diabetes may be assumed to have been unfavorable for possible regeneration of the damaged adrenal cortex. The patient was in a subacute condition of adrenal cortical insufficiency when seen May 12. At that time it appeared that he would survive probably not more than about six months. He died October 18. This prognosis was based on the existing evidence of advanced adrenal cortical insufficiency, indicating extensive and progressive degeneration of the glands. The development of ebony colored small spots in a patient with Addison's disease is associated with irreparable damage to the cortex of the adrenals. The gravity of the condition was indicated further by the repeated exacerbations and by evidence of progressive adrenal degeneration as interpreted from the costolumbar pressure reaction. The presence of this sign in Addison's disease may be interpreted as evidence of active inflammatory or degenerative processes in the gland. The case illustrates the serious danger of attempting adrenal surgery for the correction of various ailments supposedly related with disturbed adrenal function. Such supposed relations are entirely hypothetical and are not supported by tenable evidence.

Disappointing Results From Ionization Treatment For Hay Fever. Maximilian A. Ramirez, New York (*Journal A.M.A.*, Jan. 25, 1936), used the ionization technic recommended by Warwick in fifty cases of true (seasonal) pollen cases, so-called hay fever, and twenty-five were cases of nonspecific perennial vasomotor rhinitis that did not give a positive skin reaction to allergens ordinarily used in testing. In the group of nonspecific perennial vasomotor rhinitis he believes that there was evidence of benefit and that the vast majority were improved. In the hay fever series (seasonal pollinosis) the treatment was a complete failure. Passive transfer tests performed with the serum of several of the hay fever patients showed no variation whatever following ionization treatment.

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EDITORIAL

A PROBLEM IN PREVENTION

The usual approach to the study of embryology is by way of ontogeny, the development of the individual. For a psychiatric approach to consideration of mental mechanisms we must take into account the other aspect of the subject, phylogeny which treats of the evolutionary history of all animal life. This forms the basis for the interesting hypotheses so ably propounded by Jellife in his "Paleopsychology."

The life span of the individual is divided, roughly, into four periods: the archaic, the period of intrauterine life; the organic, the period from birth to about seven years; the narcissistic, from seven to fourteen years; the social, from fourteen years to maturity. During the archaic period the fertilized ovum develops as a recapitulation of the entire life process into the end-product of conception. In nine months time, from a cell one-two hundredth of an inch in diameter comes a functioning organism weighing several pounds. This development is the result of physiochemical influences and phylogenic determination covering millions of years of evolution. The mental make-up of the individual has its foundations in phylogenic reactions and hereditary influences of species, race and family. As Jelliffe says, "in the period of gestation there is reenacted the whole of creation, the entirety of evolution, in one majestic sweep from the protoplasmic cell to the highest form of animal life, man."

Carruth's poem comes to mind:

A firemist and a planet,
A crystal and a cell,
A jellyfish and a saurian, and caves where the cavemen dwell.
Then a sense of law and beauty and a face turned from the clod.
Some call it evolution and others call it God.

The second period is that of organic rivalry or organic adaptation. The organs develop and growth proceeds according to the effect of internal secretions. Balance and coordination are established for proper function of the individual in his environment. During this time the attitude of the person to his surroundings is impersonal. The interest of the young child is in things about him, not in his relationship to them. He does not think of himself as part of the ensemble.

During the third or narcissistic period the personal element gradually asserts itself and the individual becomes the center of his own interest. Here begins the integration of the personality. He is in the "big Injun" stage. His environment is viewed in its relations to himself. He is self-centered, a young savage; the world is his oyster and his vanity is prodigious.

As we proceed to the social period the egotistic feelings, the thoughtless impulses and primitive urges have to give way before the necessity of fitting into the social structure. Through education, admonition, ridicule and observation, inhibitions are established which curb the exuberant psychomotor activity of youth and enable the individual to live with other people. His gregarious instincts direct that these inhibitions become established. But for some time these restraining mental mechanisms, which make possible adjustment in the social structure, are lightly held and do not become relatively fixed until maturity, relatively because it is apparent that civilization is only a thin veneer. As a result of the impressions derived from experience the individual is then able to weigh the pros and cons of a situation and form judgment.

In youth under the strain of various and acute influences judgment is difficult. Under the influence of alcohol it is often impossible. Alcohol is a depressant and sedative and is not a stimulant. By its depressant action it removes the inhibitions, the thin veneer is lifted and the person regresses to the narcissistic or "big Injun" stage of his development. It is well to remember that the person under discussion may be twenty or forty years of age. His vanity makes him a "show-off" and his behavior is influenced to no slight degree by the familial and racial heritage of the archaic period. If he is driving an automobile it becomes an engine of destruction and he a menace to himself, his companions and the public. Thus regarded, alcoholic beverages are more dangerous after a few drinks than when the toxic effects of larger quantities have induced varying degrees of bulbar paralysis with incoordination, speech difficulty and ataxia.

Physicians' lives are consecrated to the relief and prevention of human suffering. Many of us have tried to restore the broken bodies after these all too frequent and serious automobile mishaps, have stood with grief-stricken parents and asked with them the question, "why do these things have to happen?" Others of us have seen the broken minds with their feelings of guilt and self-accusations torturing through the years. If by the weight of our authority we can impress the young with the dangers and protect them from what is spoken of as "the results of their own folly," we will contribute in no small degree to the sum of human happiness.

DIRECTOR OF BUREAU OF INVESTIGATION

The selection of Frank J. Clancy of Seattle as Director of the Bureau of Investigation of American Medical Association in place of Albert J. Cramp, resigned, is a recognition of a man of character and ability in a special line of medical endeavor. Dr. Clancy has long had the respect and confidence of the Washington profession in consequence of the outstanding work that he has carried on as Chairman of the Public Relations Committee of the State Medical Association and an active official of the Public Health League. The time and labor which he has devoted to these interests have been of an arduous character, often times encroaching materially upon the demands of his medical practice. He has been distinguished for his persistence and earnestness in this work which have made him the outstanding physician of the state in promoting these objectives, whose only purpose has been to foster the welfare and interest of the whole profession.

His leadership and constructive efforts along these lines of endeavor in Washington have indicated his fitness for a wider and more important field of work. His appointment to this responsible position in the national organization is a recognition of his ability and qualifications to carry on similar work in a much larger and more responsible field of activity. While his friends and admirers in Seattle, as well as other sections of the state, deeply regret the suspension of his usefulness in the work with which he has so long been connected, they extend to him hearty congratulations for the distinction which has been conferred upon him. Those familiar with his characteristics and pleasing personality predict a successful future in this new field of work which will redound to his own credit and the medical profession of the country.

SURGICAL SOCIETY MEETINGS

During recent years surgical societies in our leading cities have provided outstanding programs for the local profession, usually featuring one or more leading specialists from different parts of the country. Important surgical meetings were held both in Seattle and Spokane this month with programs of papers by visiting guests and local members. The meeting of Seattle Surgical Society, January 31-February 1, was notable as its silver anniversary. During the past twenty-five years it has served a very useful purpose in encouraging surgical studies and promoting the advance of surgical progress. A special feature of the Seattle meeting was the conferring of honor on one of its members, J. Tate Mason, President-elect of American Medical Association. The profession of Seattle has enjoyed a degree of reflected honor from its distinguished member and took delight in extending to him congratulations for the great distinction which has been bestowed upon him. Hopes and expectations of a successful administration of the national organization were extended to him with the assurance of the united support of the profession during his year of leadership.

A remarkable group of leading, distinguished surgeons featured the program of the two days session. These included Willis C. Campbell, Professor of Orthopedic Surgery, U. of Tennessee Medical School; Verne C. Hunt, Professor of Surgery, U. of California Medical School; Thomas M. Joyce, Professor of Surgery, U. of Oregon Medical School; A. W. Adson, Professor of Neuro-Surgery, Mayo Clinic; Frank Hinman, Professor of Urology, U. of California Medical School; Waltman Walters, Professor of Surgery, Mayo Clinic; Richard C. Dillehunt, Professor of Surgery, U. of Oregon Medical School. Papers by each of these surgeons with clinics by a number of them comprised the program for this occasion.

The attendance was the largest in the history of the Society, being comparable to that of a state meeting. Beside representatives from most cities of Washington, there were good delegations from Oregon and British Columbia. The special social feature was dinner at Rainier Club with more than two hundred and fifty guests. The verdict was unanimous that this was a most profitable and enjoyable event, greatly to the credit of Seattle Surgical Society.

The meeting of Spokane Surgical Society featured as guest of honor Owen H. Wangensteen, Professor of Surgery, University of Minnesota Medical School. Papers by Dr. Wangensteen and members of the Spokane society comprised the program for the meeting, February 8. These covered a great variety of surgical subjects, displaying the surgical versatility of the Spokane profession.

OREGON ALUMNI ASSOCIATION MEETING

The annual meeting of Alumni Association of University of Oregon Medical School will be held in Portland, March 2-4. All members of the medical profession are invited to attend. The guest speaker for the meeting will be Dr. Thomas R. Brown, Professor of Medicine, Johns Hopkins University. He will devote his lectures to internal medicine. The program will include three mornings of clinical demonstrations at the Multnomah County Hospital and three afternoons of lectures at the Medical Dental Auditorium. It is anticipated that this program will be one of the most educational ever produced in this section. The officers of the Association desire notification to that effect from all who expect to attend this meeting.

MEDICAL NOTES

OREGON

Postgraduate Course in Ophthalmology and Oto-Laryngology. A week of intensive work will be given in March, 1936, at Portland, under the combined auspices of Oregon Academy of Ophthalmology and Oto-Laryngology and University of Oregon Medical School. A course in ocular pathology supervised by Dr. John E. Weeks and Dr. Frank R. Menne, Professor of Pathology of the University of Oregon Medical School, will be offered. Dr. Olof Larsell, Professor of Anatomy, will conduct a course in dissection of the head and neck. Lectures and operative clinics will be presented by Dr. Harry S. Gradle of Chicago, Dr. William L. Benedict of Rochester, Minn., Dr. William P. Wherry of Omaha, and Dr. Dean Lierle of Iowa City. Physicians of the Northwest who are interested may obtain further information by addressing Dr. A. B. Dykman, Medical Dental Building, Portland.

Basic Science Examinations for Oregon will be held March 21, Room 720 Oregon Building, Portland, July 18 in Corvallis and November 21 in Portland. The subjects for examination are anatomy, physiology, pathology, chemistry and hygiene. Application blanks and general instructions may be obtained from Charles D. Byrne, State Board of Higher Education, Eugene. Applications for the next examination should be filed with the secretary not later than Wednesday, March 4.

Notable Longevity. When a physician passes the century mark, he becomes distinguished on that account. Every additional year increases this distinction. J. B. Wright of Portland has passed the 101 mark, an outstanding accomplishment for any man. He is reported as attributing his longevity to abstinence from tobacco and whisky and the fact that he is a "dyed-in-the-wool" Democrat. Dr. Wright is said to be physically in good condition, doing something every day and maintaining an interest in politics. May he survive for an even longer period.

Hospital Contract Awarded. Contract has been awarded for construction of a third floor to the State Tuberculosis Hospital at Salem and a nurses' home at the institution. Together with federal aid the sum of $93,307 will be spent for this work.

New Quarantine Officer. W. C. Reiner of Portland, who has recently served as assistant city physician, has been appointed quarantine officer under John G. Abele, city health officer. Dr. Reiner will fill the vacancy created by the retirement of J. H. Wells. L. J. Wolf, assistant health officer, will be in charge of the isolation hospital.

Jackson County Medical Society held a meeting at Medford, January 15. William P. Holt of that city acted as toastmaster at the dinner. An interesting program was presented, consisting of music and addresses. Mrs. Gordon MacKrecken was given a gold bracelet in appreciation of her collection and compilation of a history of all physicians of Jackson County, past and present.

Klamath and Lake Counties Medical Society held a regular meeting at Klamath Falls, January 22. The following officers were elected for the ensuing year: President, L. L. Truax; Secretary, J. M. Hilton, both of Klamath Falls.

Central Oregon Medical Society held a meeting at Bend, Janua1y 14. C. J. Rademacher of Bend was elected president for the ensuing year, succeeding R. W. Hemmingway. Raymond Adkisson of Prineville was elected vice-president and J. W. Thom of Bend, secretary.

Donald M. Long of Portland has located for practice at Springfield where he will be associated with Milton V. Walker. Dr. Long is a graduate of University of Oregon Medical School, later studying at Santa Barbara, Calif., and St. Paul, Minn. Recently he served a year in the Civil Conservation Corps Camp.

Elected President of Board. J. H. Rosenberg of Prineville has been elected President of Oregon State Board of Health. Frederick W. Stricker of Portland was reelected secretary. N. E. Irvine, A. W. Chance and F. W. Stricker were named a committee to draft new health legislation.

Deputy Health Officer. Harvey A. Woods of Ashland has been appointed county deputy health officer. He devotes his time to public health work, particularly concerned with preventive medicine.

Resigned From Hospital Staff. P. L. Newmeyer, chief of medical staff of State Tuberculosis Hospital at Salem, has resigned after serving for fifteen years. This retirement from office was confirmed by the State Board of Control.

Ivan E. Bennett, who has practiced for the past four years in Independence, has located in Union. Having graduated from University of Oregon Medical School, he served as interne at Good Samaritan Hospital in Portland before beginning practice.

F. B. Belt of Portland has located for practice at Hermiston. After graduating from University of Iowa Medical School he located in Portland where he was on the attending staff of Emanuel Hospital.

WASHINGTON

Medical Museum. Under the auspices of Puget Sound Academy of Surgery, a medical museum has been established in Seattle, which will be under the immediate supervision of Joel W. Baker. Space for the museum has been assigned in King County Hospital. It is proposed to assemble interesting and curious relics of the medical profession, both medical and surgical. Anyone wishing to deposit such interesting antiques is requested to confer with Dr. Baker.

Hospital Burned. Stanton Hospital at Tenino was destroyed by fire January 8. The inmates were removed before the flames had extended far enough to prevent aid from rescuers.

Clinical Center to be Established. The State Board of Public Works has made a grant of $100,000 for a clinical center at Northern State Hospital at Sedro Woolley. Bids have been called for with the intention of starting construction the middle of January.

New Health Officer. J. W. Darrough of Everett was appointed city health officer at a recent meeting of the Board of Health, succeeding I. W. Parsons. The Board of Health, composed of W. V. Fullerton and W. D. Smith, was recently appointed by the commissioner of public safety.

Assistant Health Officer. H. A. Barner was appointed assistant city health inspector of Bremerton by the city commissioners January 4. He replaces J. N. Nelson recently resigned, who has moved to Los Angeles.

Appointed Health Officer. J. W. Stevenson of Montesano, who at present is county coroner, was appointed health officer by the county commissioners January 7. He succeeds Lawrence Hopkinson of Aberdeen.

New Health Officer. P. P. Cooley of Monroe was selected health officer by the mayor. He succeeds J. W. Darrough, resigned.

Aspires to the Mayoralty. L. W. Whitlow of Seattle has filed as candidate for mayor of the city and has been busy broadcasting his qualifications. The popularity of the position is indicated by the competition among the fifteen candidates.

Physician to County Jail. Charles C. Tiffin of Seattle has been appointed by Sheriff Severyns as physician to the county jail, succeeding Frank J. Clancy who has been appointed Bureau of Investigation Director of the American Medical Association.

Stationed in MidPacific. William M. Davidson of Seattle, who recently served as city hospital physician, has been appointed physician for Pan-American Airways. He will be in charge of medical work for airplane crews flying to Midway, Wake and Guam Islands.

Stevens County Medical Society held its annual meeting at Colville January 15. The following officers were elected for 1936: President, Merle B. Snyder, Chewelah; Vice-president, R. G. Wells, Colville; Secretary-Treasurer, W. J. Stark, Colville; Trustees, W. A. Olds, Colville, C. J. Carson, Chewelah, F. L. Peterson, Chewelah.

Lewis County Medical Society held a meeting in Centralia January 13. The following officers were elected for the ensuing year: President, W. D. Turner of Chehalis; Vice-President, C. G. Bain of Centralia; Secretary, Rush Banks of Centralia who has served in this capacity for the past twenty-five years.

H. M. Morgan, who has practiced in Longview for several years, has moved to Winlock where he will be associated in practice with Glen Mathis. They will also have offices at Toledo.

Carl F. Stefan, who has recently served on the staff of King County Hospital, Seattle, has located for practice at Longview. He began practice there last month.

IDAHO

Work Begun on Infirmary. Work has been started on the infirmary for University of Idaho at Moscow, all obstructions having been eliminated. It will be built at a cost of $118,000.

County Health Physician. F. F. Horning of Rathdrum has been appointed county health officer by Kootenai county commissioners. He will move to Coeur d'Alene to carry on the duties of his office.

Dr. Robert H. Greene of Hagerman, Ida., died January 21, aged 72 years. He was born in 1864 and obtained his medical degree from St. Louis College of Physicians and Surgeons in 1896. He practiced at Hagerman for twenty years, previous to that having been at Emmett.

OBITUARIES

Dr. W. Kent Ruble of Seattle, Wash., died January 1 of pneumonia, aged 39 years. His death followed four hours after that of his father-in-law from the same disease. He was born in Arkansas in 1896. He graduated from University of Oklahoma and then obtained his medical degree from Tulane University in 1924, later pursuing special medical studies at Long Island Hospital, New York City. After practicing in Louisiana and New York state, he settled for practice in Seattle in 1927. He specialized in obstetrics and gynecology, in which he was successful and was recognized as one of the leading practitioners. He was held in high esteem by a large circle of friends and the whole medical profession.

Dr. Fenton B. Whiting of Seattle, Wash., died January 15 after a prolonged illness following cerebral hemorrhage, aged 69 years. He was born at Quincy, Calif., in 1866 and moved to Seattle in 1887. He obtained his medical degree from Cooper Medical School, San Francisco, in 1891. Following discovery of gold in Alaska he spent ten years there, being chief surgeon during construction of White Pass and Yukon Railroad and the Copper River Northwestern Railroad. Being a man of powerful physique, he was a conspicuous figure in these early days of Alaska mining. He was friend of many Alaska pioneers, among them being Rex Beach who featured him under the name of Dr. Gray in his well known novel "The Iron Trail." Some of his interesting Alaskan experiences are recorded in "Grit, Grief and Gold" which he wrote a few years ago.

Dr. Erestus T. Hanley of Seattle, Wash., died January 23, as a result of heart and kidney disease, aged 59 years. He was born near Terra Haute, Ind., in 1876. After graduating from Franklin College, he received his medical degree from Rush Medical College in 1905. Before going to Medical School, he served as a soldier in the Spanish American War. Immediately after medical graduation he located for practice in Seattle, which was continued until the time of his death. In his early practice he was connected with the Wayside Hospital, located on the waterfront, as an emergency institution. He was appointed Seattle Health Commissioner in 1924, continuing in this office until three years ago, when he resigned to engage in private practice. He was a well known sportsman, spending much spare time in hunting and fishing. He had the respect and confidence of the medical profession.

Dr. Hugh P. Ross of Nampa, Ida., died January 17, after several weeks illness following pneumonia, aged 60 years. He was born at Exeter, province of Ontario, Canada, in 1875. He obtained his medical degree in 1900 from Medical Faculty of Trinity University of Toronto. He located for practice at Tintah, Minn. In 1904 he moved to Nampa, where he practiced until the time of his death. He was president of Idaho State Medical Association in 1928. For the past eight years he has been a member of state medical examining board. Several years ago he served as a member of the legislature. He was well known and respected by the medical profession.

Dr. Elmer E. Goucher of McMinnville, Ore., died December 27, aged 77 years. He was born in California in 1858, moving to Oregon with his parents at six years of age. His early schooling was at Dallas and Richreall. He obtained his medical degree from the Medical Department of Willamette University in 1882. After serving a year with the Northern Pacific Railroad, he located in McMinnville in 1883. He was dean of the medical profession in Yamhill county, with a wide acquaintance in that section of the state.

Dr. Clayton D. Bartlett of Aberdeen, Wash., died suddenly January 14 from disease of the heart, aged 56 years. He was considered in excellent health, having no cardiac symptoms until very recently. He was born in Wycoff, Minn., in 1880. He obtained his medical degree from University of Illinois College of Medicine in 1905. He practiced in Minneapolis until 1908 when he located at Aberdeen. He was in general practice until 1929 when he specialized in eye, ear, nose and throat work.

Dr. Ernest K. McCown of Stanfield, Ore., died December 19 of pneumonia, aged 43 years. He obtained his medical degree from University of Louisville, Ky., in 1925. After serving in the medical corps in France during the World War he was employed in the government Indian service in Arizona. Later he located for practice in Scappoose. For several years he was connected with the Hot Lake Sanatorium near La Grande.

Dr. Harry C. Randle of Portland, Ore., died January 18, aged 70 years. He was born in Salem in 1865. After graduating from University of Oregon, he obtained his medical degree from the Medical Department of Willamette University. For many years he practiced at Nehalem. In 1917 he went to Alaska in charge of hospitals under U. S. Bureau of Education.

Dr. Eli Taylor of Nez Perce, Ida., died December 15, after a prolonged illness, aged 83 years. He was born at Marion, Ohio, in 1852. He graduated from Louisville Medical College in 1895. He located in the West about 1900, managing a drug store at Peck. He moved to Kamiah in 1908 where he practiced medicine. In 1914 he located in Nez Perce where he lived until the time of his death.

Dr. Arthur De Voe of Seattle, Wash., died December 29, aged 85 years. He was born in New York state in 1850. He obtained his medical degree from University of Buffalo School of Medicine in 1875. He located in Seattle in 1887. He has been in poor health for nearly twenty years, when he retired from active practice.

REPORTS OF SOCIETY MEETINGS

OREGON

POLK-YAMHILL-MARION COUNTIES SOCIETY

Pres., W. W. Baum; Secy., R. M. Waltz

Polk-Yamhill-Marion Counties Society held its annual meeting at Salem, January 14. Paul Pemberton read a paper on "Artificial Fever Therapy." A motion picture film was presented on surgical treatment of advanced pulmonary tuberculosis, which was discussed by P. L. Newmeyer.

The following officers were elected for the ensuing year: President, Hugh Dowd of Salem; Vice-President, Gerald Backstrand of Salem; Secretary-Treasurer, R. M. Waltz of Salem; Councilors, A. G. Noble of McMinnville, and P. A. Loar of Silverton.

WASHINGTON

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secy., M. S. Jared

A regular meeting of King County Medical Society was held in the auditorium of Medical Dental Bldg., Seattle, Jan. 20, with President Forbes in the chair. Minutes of the preceding meeting were read and approved.

Applications for membership were read as follows: Charles Denne, C. D. Kimball, W. S. Voegtlin, J. E. Wirth, W. W. Bartine and Belle Conrad.

C. D. F. Jensen read a paper on "Detached Retina and Its Treatment by Electrocoagulation." Definition and occurrence of this condition were given. Symptoms include limited visual fields, distorted vision, light flashes and loss of central vision. An historical review of procedures for correction of this condition was given. The technic for performing the modern operation was presented. The hole in the retina is visualized. The eye being anesthetized with 2 per cent novocaine, an external canthotomy is performed. The conjunctiva is anesthetized with cocaine. The necessary incisions through conjunctiva, Tenon's capsule and the muscles were detailed. The position of insertion of the needles for coagulation was specified and the final details concluded. The paper was discussed by Frederick Adams, S. M. Samuels and M. P. Dorman.

The second paper was by David Metheny on "The Significance of Itching in Obstructive Jaundice." He reported on the study of twenty-eight cases in which itching was a prominent symptom, all of obstructive jaundice. Nonobstructive jaundice does not itch, nor do all cases of obstructive jaundice. The symptom of itching is due to the lack of bile salts in the blood and is relieved by their administration by mouth. Experimental work was given to verify this statement and selected clinical cases were described which were relieved by this form of therapy. The paper was discussed by H. C. Hofrichter, Ralph H. Loe, and C. C. Goss.

PIERCE COUNTY MEDICAL SOCIETY

Pres., J. R. Turner; Secty., W. R. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, on January 14, with J. R. Turner, President, in the chair. Minutes of the previous meeting were read and approved.

A case report of congenital diaphragmatic hernia was presented, with numerous roentgen films and history of symptomatology and surgical procedure, by W. A. Neithammer. The roentgen films were discussed by B. D. Harrington.

W. W. Mattson gave a paper on "The Evolution of Blood Transfusion," with a demonstration of improved technic. Dr. Mattson's paper was accompanied by lantern slides and with the aid of his apparatus he demonstrated his improved method for giving blood transfusions. Drs. Herrmann, Duerfeldt and Schaeffer discussed this paper.

The application of R. L. Bailey for membership in the society was read.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., R. K. Behrns; Secty., F. W. Baugh

Skagit County Medical Society held its annual meeting at Mount Vernon last month. The following officers were elected for the ensuing year: President, F. W. Baugh of Burlington; Vice-President, W. W. Eberling of Mount Vernon; Secretary-Treasurer, Harold Hopke of Sedro-Woolley; Trustees, W. L. Jackson of Burlington and S. G. Brooks of Anacortes; Delegate to annual meeting of state association, R. K. Behrns of La Connor; Alternate Julian Coleman of Mt. Vernon.

SPOKANE COUNTY MEDICAL SOCIETY

Pres., D. H. Lewis; Secty., F. J. Burns

Spokane County Medical Society held a meeting at Spokane, January 10. The following officers were elected for the ensuing year: President, Fred G. Sprowl; President-elect, A. D. MacIntyre; Secretary, M. T. Harris; Treasurer, J. M. Aspray; Board of Censors, R. G. Andres; Trustees, F. R. Fischer and R. E. Ahlquist; Delegates to state medical association meeting, D. H. Lewis, R. J. Sprowl, A. E. Lien and J. M. Nelson; alternates, F. J. Burns, F. K. Patton, J. G. Matthews, J. W. Mounsey.

The report of the Medical Service Bureau showed ninety-eight physicians as members. During the past year there were 6500 patients under contract. Approximately $68,000 was received in dues in comparison with $37,000 in 1934. It was stated that, although this is the second youngest bureau in the state, it had paid the highest fees to doctors.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J C Lyman; Secty., C. J. Johannesson

The regular monthly meeting of Walla Walla Valley Medical Society was held at Grand Hotel, Walla Walla, Jan. 9. The meeting was preceded by dinner. More than fifty physicians were present, including physicians from the Inland Empire, L. B. Bouvy of LaGrande, Ore., being a visitor from the greatest distance.

President John C. Lyman presided and after dinner introduced the speaker, Ralph A. Fenton of Portland, Clinical Professor and head of the Department of Oto-Laryngology, University of Oregon Medical School, and one of the trustees of the American Medical Association. Dr. Fenton's address was "Nose, Ear and Throat Conditions from the General Practitioner's Viewpoint." Going thoroughly into the details of sinus, ear and throat conditions in an admirable and vivid way, he pictured and described his subject in such way that it was most interesting, not alone to the general practitioner, but the specialists present as well. He spoke on mastoid and throat lesions, laying considerable stress on acute mastoid infections in children who one day may have a high blood count and temperature with definite roentgen and clinical findings and the next day or so, a drop in temperature and blood count, which looks to the general practitioner that the child is improving, but Dr. Fenton brought out that such change in most instances was a warning that the child was losing vitality, that there was a breaking down of cells, and surgery indicated. Discussion was led by J. T. Rooks and G. R. Gowen, followed by a lively general discussion.

The following new members accepted: Sam R. Page, recently located to practice in Walla Walla; G. V. Jamieson, surgeon U. S. Veterans' Hospital; G. C. Daniel, clinical director, U. S. Veterans' Hospital, reinstated to membership after an absence from the city for two years.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull

The regular monthly meeting of Yakima County Medical Society was held at Commercial Hotel, Yakima, January 13. The meeting was preceded by a dinner with thirty-four physicians present, not including the guest physicians who presented the program. President William L. Ross, Jr., presided.

F. M. Fischer of Spokane presented a paper on mesenteric adenitis in children. This was based on a review of the literature and five cases of his own. He stressed the importance of having this condition in mind in every child who has an upper respiratory infection followed by abdominal symptoms suggestive of appendicitis. H. H. Skinner discussed the paper.

O. M. Rott of Spokane presented a paper on the methods of procedure in diagnosis of intracranial otitic complications. The speaker emphasized the fact that these complications should be suspected when something goes wrong after operations on the ear or mastoid or suppurative conditions of the ear. Discussion was led by Dr. Lugar followed by Drs. Schott, Bline and Hicks.

The following standing committees for 1936 were appointed by the president:

Advisory Committee: W. K. Covklin, P. J. Lewis, F. J. A. Ditter.
Auxiliary Committee: G. E. Marcy, Kay England.
Library Committee: J. E. Bittner, Jr.
Legislative Committee: D. F. Bice, R. W. Shirey, F. H. Brush.
Medical Bureau Board: C. R. Duncan, R. W. Shirey, P. J. Lewis, D. F. Bice, J. F. Scott.
Board of Censors: W. K. Cocklin, J. H. Millhouse, H. S. Atwood.

The annual election of officers was held at the meeting on December 9, 1935, the following officers being elected:

William L. Ross, Jr., President.
F. J. A. Ditter, Vice-president.
Howard L. Hull, Secretary.
Ralph W. Shirey, Treasurer.

A rising vote of thanks was given to F. W. Nagler for his thirty years of continuous service as treasurer of the society. He declined the nomination for further service.

IDAHO

NORTH IDAHO DISTRICT SOCIETY

Pres., C. D. Armstrong; Secy., J. E. Baldeck

North Idaho District Medical Society held a meeting at Lewis-Clark Hotel, Lewiston, January 15. Among those in attendance were six physicians and their wives from Moscow. The following officers were elected for the ensuing year: President, P. G. Haury of Lewiston; Vice-President, D. A. Christensen of Kendrick; Secretary, J. F. Gist of Lewiston; Board of Censors, R. T. Hopkins of Orofino.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

Portland, Ore., Jan. 17, 1936.

The January 9th meeting of the Council of Oregon State Medical Society was held at Campbell Court Hotel in Portland. A resolution from Multnomah County Medical Society was received and passed to the effect that "Oregon State Medical Society make available to the component societies legal counsel qualified to advise them as to the correct interpretation of the various provisions embodied in the established regulations of Oregon State Medical Society and American Medical Association, as well as their own, and the proper procedure to be followed in applying these regulations."

The United States Public Health Service has asked physicians for information regarding treatment given to their patients in the past. A letter from the Legal Department of the A.M.A. reads as follows: "There being no statutory authority justifying disclosure to the representatives of the United States Public Health Service, consent of the patient is necessary before a physician may safely, or ethically, make the disclosure. * * * If the 'enumerator' * * * indicates on the schedule that the patient has consented * * * and the physician thereafter does disclose, he may be placed in an embarrassing position." It is, therefore, advised by the Legal Department of the A.M.A. "(1) that the physicians of Oregon insist that the authorization contained on the schedule be signed by the patient, or (2) that the physicians confirm that authorization independently."

A letter was read from Dr. Arthur J. Cramp, recently retired director of the Bureau of Investigations of the A.M.A., written upon his receipt of a resolution of thanks from Oregon State Medical Society and closing with these words, "Will you please convey to the Society my heartfelt gratitude for their more than generous words of commendation and appreciation." Dr. Cramp's arduous work has been appreciated by our membership, and we wish him well in his retirement.

The Council voted to take no action toward recommending any particular individual for appointment to membership on the State Board of Medical Examiners.

The Council voted to recommend to the dean of the medical school that a course in medical economics and medical organization be included in the curriculum of University of Oregon Medical School.

A letter was read from Dr. Olin West, Secretary and General Manager of the A.M.A., regarding a questionnaire which was sent out by the American Foundation Studies in Government. The Foundation has no preconceived notions but is simply carrying out one of its surveys on subjects which are more or less important, and its report will not be statistical but will be based on the statements of physicians "as they wish to make a genuinely impartial presentation of the present organization of medical service throughout the country."

The Secretary, in the name of Oregon State Medical Society, sent telegrams to President Roosevelt and to Harry Hopkins, PWA Administrator, urging the approval of the Wolf Creek and Wilson River highway projects as a means of opening up shorter routes to the sea from the Portland area and at the same time giving much needed work to the unemployed. The newspapers have since reported that both projects have been passed for completion.

A. G. Bettman,
Editor.

WOMAN'S AUXILIARY

Portland, Ore., Jan. 26, 1936.

The Woman's Auxiliary to the Oregon State Medical Society held its midyear board meeting January 9, at the Benson Hotel in Portland. The one day session was presided over by Mrs. William F. Patrick, president. All component auxiliaries were represented at the meeting.

In addition to the regular business, the meeting was made particularly interesting by an address given by Dr. G. A. Massey, Klamath Falls, president of the Oregon State Medical Society, and also a talk by Dr. Frederick W. Stricker, Portland, secretary to the Oregon State Board of Health. Dr. Stricker explained the provisions of the Social Security Act. Upon the advice of the Advisory Council of the State Society, our President, Mrs. Patrick, has accepted membership on the Advisory Committee, under the provisions of the Social Security Act regarding Maternal and Child Health.

At the luncheon meeting, talks were given by Dr. Charles E. Sears, Portland, and Dr. Charles T. Sweeney, Medford. Dr. Sweeney announced that the annual meeting of the Pacific Northwest Medical Association will be held July 7-10, in Portland. The Multnomah County Auxiliary will join with the State Auxiliary in being hostesses to the wives of visiting doctors.

The Salem members of the Polk-Yamhill-Marion Auxiliary are establishing a lending library of authentic medical literature for lay organizations to be used in their health programs.

Oregon Auxiliary members are eagerly awaiting the visit of the National President, Mrs. Rogers N. Herbert, Nashville, Tennessee, on February 3. Only on one previous occasion has the state been so honored, when Mrs. Arthur B. McGlothlan, then National President, attended our annual meeting in 1931.

A group will meet Mrs. Herbert upon her arrival and she will be a guest at the Town Club during her visit in Portland. The State Auxiliary has called a special meeting scheduled for 10:00 a. m. with luncheon to follow, in the main dining room of the Club. The Multnomah County Auxiliary will hold its annual meeting and tea in the afternoon at the home of Mrs. Charles E. Sears for Mrs. Herbert's pleasure. Dr. G. A. Massey and Council members will honor Mrs. Herbert at dinner at the Campbell Court Hotel.

Mrs. Raymond T. Kaupp,
Chairman, Press and Publicity.

WASHINGTON

WASHINGTON COMMITTEE APPOINTMENTS

Yakima, Wash., Jan. 25, 1936.

With the idea in mind that some of the State Association members would like to contact certain state committee members regarding contemplated or suggested problems, I am having printed a roster of the standing committees for 1935-1936. If any of our members have suggestions to offer I am very sure that our committeemen will welcome them. Try to feel that these are your committees, and that they are just an integral part of your society. They are working for you, and you should be helping them.

In reading over the annual reports of the past chairmen of these same committees, I am forced to say that the most outstanding feature is the absence of any work accomplished. It is true that some of the men spent a great many hours, traveled around the state at their own expense, and really accomplished something. But it is just as sure that a great many of the appointees sat back and did next to nothing. Now this is your society. You will profit from it only in proportion to what you invest in effort. Don't sit back and leave the whole burden for your officers to carry. No society can operate smoothly and efficiently with only a few doing the work.

I have heard from the chairmen of some of the committees, and am highly pleased with the work that they have outlined for the year. We are entering into one of the most critical periods of history for medicine in the United States. With so many clamoring for social medicine, and with such a strong government trend to monopolize private rights, it behooves every one of us to lend all the assistance we possibly can muster to keep our Association a strong unit.

Some of the committees herein named have a splendid opportunity to put before the public a clear conception of what organized medicine is actually accomplishing, especially in the field of preventive medicine, and I am gratified with the progress they have already made this year. However, there is an unlimited amount of work yet untouched. You will help your officers and you will benefit your Association if you extend your committee efforts still further.

Public Relations Committee: F. J. Clancy, Seattle, chairman; H. E. Rhodehamel, Spokane; M. S. Jared, Seattle; D. H. Lewis, Spokane; H. S. Atwood, Yakima; R. L. Zeck, Seattle; A. T. Wanamaker, Seattle; J. T. Mason, Seattle.

Public Health and Sanitation: S. M. Cresswell, Tacoma, chairman; E. R. Coffey, Seattle; T. C. Baldwin, Port Orchard; W. D. Hunt, Seattle; L. Moffitt, Yakima; W. C. Trowbridge, Goldendale.

Mental and Nervous Diseases: G. W. Swift, Seattle, chairman; J. W. Doughty, Sedro-Woolley; W. M. Conway, Medical Lake; W. N. Keller, Steilacoom; A. J. O'Leary, Spokane.

Hospital Service Committee: A. E. Hillis, Tacoma, chairman; W. W. Ballaine, Bellingham; F. J. Whitacre, Spokane; L. L. Long, Seattle; R. D. Wiswall, Vancouver; H. G. Willard, Tacoma; W. A. Taylor, Ellensburg; H. E. Coe, Seattle; J. F. Christensen, Kelso; H. E. Cleveland, Burlington.

Legislative: A. C. Crookall, Seattle, chairman; N. L. Thompson, Everett; H. G. Wright, Seattle; E. Hill, Walla Walla; J. W. Henderson, Longview.

Maternal Care: R. S. Mitchell, Wenatchee, chairman; R. M. Hamblin, Spokane; H. H. Skinner, Yakima; F. W. Robinson, Walla Walla; C. P. Wantman, Ellensburg; D. H. Johnson, Tacoma.

Neoplastic: D. V. Trueblood, Seattle, chairman; K. H. Nickson, Seattle; H. J. Whitacre, Tacoma; J. D. Edgar, Spokane; E. I. L. Cilley, Bellingham; S. M. MacLean, Tacoma.

Thyroid: A. A. Mathews, Spokane, chairman; R. G. Andres, Spokane; B. T. King, Seattle; A. J. Bowles, Seattle; E. S. West, Yakima; R. T. Congdon, Wenatchee.

Respiratory: P. W. Cornue, Yakima, chairman; L. L. Nunn, Vancouver; C. R. McCreery, Tacoma; J. N. Nelson, Spokane; L. A. Schueler, Port Townsend; Frank H. Hartung, Olympia.

Industrial Accident: W. B. McNerthney, Tacoma, chairman; W. W. Ebeling, Mt. Vernon; J. W. Lynch, Spokane; E. G. Longley, Bremerton; S. L. Caldbick, Everett; W. H. Taylor, Port Angeles; F. G. LeFor, Goldendale; A. B. Shaw, Longview, H. M. Wiswall, Vancouver.

Tuberculosis: J. E. Nelson, Seattle, chairman; L. G. Woodford, Everett; P. Schonwald, Seattle; R. E. McPhail, Longview; L. P. Anderson, Elma; H. L. Hull, Yakima; S. L. Cox, Seattle.

Social Hygiene: W. R. Jones, Seattle, chairman; W. L. Ross, Yakima; D. G. Borbett, Spokane; M. T. MacAvilia, Mt. Vernon; C. R. Magill, Tacoma; M. B. Burdon, Seattle.

U. S. Medical Service: S. E. Lambert, Spokane, chairman; J. A. Durant, Snohomish; E. C. Ruge, Seattle; F. H. Brush, Yakima.

Cardiorenal: J. M. Blackford, Seattle, chairman; R. L. King, Seattle; D. A. Palmer, Spokane; P. V. VonPhul, Seattle; J. F. Beatty, Seattle; E. W. Jones, Tacoma; P. J. Lewis, Yakima.

Child Welfare: D. M. Dayton, Tacoma, chairman; A. Rembe, Seattle; C. L. Lyon, Spokane; W. B. Seelye, Seattle; V. W. Spickard, Seattle.

Conservation of Vision: L. L. Lugar, Yakima, chairman; W. C. Cameron, Tacoma; F. W. Jones, Seattle; M. Anthony, Spokane; T. J. Schott, Yakima.

Drug Addiction: J. E. Hunter, Seattle, chairman; J. M. Bowers, Seattle; L. A. Hopkins, Tacoma.

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Revision of By-Laws: H. G. Wright, Seattle, chairman; C. H. Thomson, Seattle; C. L. Smith, Spokane.

D. F. Bice, *President.*
Wenatchee, Wash., Jan. 24, 1936.

WOMAN'S AUXILIARY

Spokane County Auxiliary members were the guests of Mrs. Marc Anthony, at an afternoon meeting in January, to pay honor to Mrs. Blair, State President, from Vancouver. Other out of town guests were Mrs. Roscoe Smith and Mrs. James Rooks of Walla Walla. Mrs. Milo Harris reported forty subscriptions to Hygeia, with more in prospect.

Yakima County reports increased interest in their meetings, and four new members. Experience has taught them that meeting the same night and place that the doctors do meets with the approval of the greatest number, and results in the best attendance. Their chief concern this year is the State meeting, and they hope to make it very successful.

Walla Walla Valley Auxiliary has sponsored outstanding activities this year, among which were health exhibits for the meeting of the Washington State Conference of Social Welfare Workers and the Teacher's Institute, both of which were held in that city. During these conferences they distributed sample copies of Hygeia, circulars and handbooks on health published by the A.M.A. They also got Dr. Rooks to speak on "The Conservation of Vision" before the teachers. Their publicity committee, of which Mrs. Hopkins is chairman, is assiduous in getting notices of all meetings in the papers as well as health talks via radio by local doctors.

Clark and Cowlitz County Auxiliaries joined their husbands at a dinner meeting at the Evergreen Hotel, places being laid for fifty guests. Among the speakers for the evening were Mrs. J. B. Blair, State President of the Auxiliary, Dr. D. F. Bice, President of the State Medical Association, and Dr. R. C. Coffey of the health department.

Klickitat County Auxiliary, newly organized with six members, reports having joined their medical society at dinner at the Meadowlark Inn at Maryhill, thus showing the salutary effect of having the State Presidents of each organization as their guests.

Grays Harbor Auxiliary held a miscellaneous shower in the Oakhurst Sanitarium January 16. This is one of the regular philanthropies and they also provide entertaining programs for the patients from time to time.

Chelan County Auxiliary, at their January meeting in the Mirror Room of the Hotel Cascadian, was given a summary of the recent high school debate on socialized medicine. Tea and conversation with the group followed the debate.

Mrs. George E. Hoxsey,
Chairman, Press and Publicity.

IDAHO

WOMAN'S AUXILIARY

The Woman's Auxiliary to North Idaho District Medical Society held its regular monthly meeting Jan. 15 at the Lewis-Clark Hotel, Lewiston. Following the dinner Mrs. C. O. Armstrong of Moscow, recently elected president of the organization for a second term of office, presided at the business meeting. The Hygeia committee with Mrs. O. C. Carrsow of Lewiston chairman reported that ten yearly subscriptions to Hygeia had been placed in ten various schools throughout the district. An interesting article, "Why a Woman's Auxiliary," was read by Mrs. J. H. Einhouse of Moscow.

This is practically a new organization, being in its second year, and from a possible membership of thirty-six we have twenty paid members, fourteen of whom were present at this meeting.

Mrs. D. M. Loehr, *Secretary.*

BOOK REVIEWS

Diseases of Women. By Harry Sturgeon Crossen, M.D., F.A.C.S,. Professor Emeritus of Clinical Gynecology, Washington University School of Medicine, etc., and Robert James Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine, etc. Eighth Edition, entirely revised and edited, with 1,058 engravings, including one color plate. 997 pp. $10. The C. V. Mosby Co., St. Louis, 1935.

This text book contains twenty-two chapters, in which every conceivable point on this subject has been discussed in a most thorough and comprehensive manner. The chapter devoted to gynecologic pathology is especially interesting. It begins with the most important organs first and follows with the pathologic changes throughout the entire pelvis.

The classification of pathologic changes in the ovary is very much simplified, but each condition is covered in detail, with numerous engravings and photographs that are of great assistance in following the descriptions. The discussion of the various ovarian hormones and their relation to the endocrine system is illustrated with charts.

Pelvic inflammation is covered in a very thorough manner, especially with reference to the drainage and treatment of accumulated pus in the cul-de-sac and broad ligaments. Favorable results are reported from the use of x-ray in acute stages.

Operative gynecology is given a great deal of space and the illustrations are numerous. This is particularly true of the various plastic operations upon the perineum. A complete discussion of the anorectal region is given, and the use of the sigmoidoscope and the proctoscope as aids in differential diagnosis between anorectal and diseases of the female pelvis.

Brookbank.

The Radiology of Bones and Joints. By James F. Brailsford, M.D. (B'ham), M.R.C.S. (Eng.), Hunterian Professor, Royal College of Surgeons, England, 1934-5, First President of the British Association of Radiologists, etc. Second edition. With 340 Illustrations. 571 pp. $9.00. Wm. Wood & Co., Baltimore, 1935.

This book is by far the best comprehensive work on the roentgen aspects of bone and joint diagnosis which has been published in English to date. Similar in organization and style to Köhler's invaluable book, it differs in that its scope is limited to bones and joints, and that its emphasis is on pathologic conditions rather than anatomic variations and confusing borderline cases.

It is undoubtedly true that many diseases are more adequately treated in one or another of other books, but when in need of help on a difficult diagnosis one does not desire a monograph on tuberculosis or metastatic carcinoma, or even a library of such monographs, but a concise and readily available presentation of the salient features of all the diseases which should be considered. In fulfilling this requirement the present work bids fair to rank beside Köhler as indispensable to every radiologist and of value to every physician. The first 450 pages are devoted to regional diagnosis, with twenty-one chapters dealing systematically with all parts of the skeleton. These are followed by eighty-five pages of discussion and summary of generalized and systemic diseases with page references to their discussion in the regional presentation.

The illustrations are numerous and fairly adequate, although, as is so often the case, many are so blurred in reproduction as to be almost unrecognizable, while others would be meaningless unless one knew what they were intended to show. Their reproduction as negatives of the original films is, of course, not confusing to a radiologist, but may be to some others. These minor faults can, however, easily be forgiven in such an up-to-date and comprehensive work on the radiology of bones and joints.

Exner.

Injury and Incapacity. With Special Reference to Industrial Insurance. By H. Ernest Griffiths, M.S. (Lond.) F.R.C.S. Surgeon, Albert Dock Hospital; Consulting Surgeon, Wimbledon Hospital, etc. 270 pp. $5.00. William Wood and Co., Baltimore, 1935.

This author has compiled a list of disability statistics from his own experience and that of one of England's largest insurance companies. The survey includes both accidents and incidental sickness and their relation to the period of incapacity. These are rated according to the nature of the disability and the claimant's ability to follow a gainful occupation. In adjusting a claim, particular attention is given to the type of work performed by the injured person whose case is under consideration. Work, as physical effort, is classified as heavy and light and consideration is given to age and physique. The degree of permanent partial disability is rated according to the trade or occupation of the claimant.

The author includes, no doubt for sake of completeness, the various though rare posttraumatic conditions, as injuries to the heart, pancreas, etc. Many of the subjects are briefly described, with only suggestions to the conditions. Uncomplicated fracture of the bodies of the vertebrae are given an average period of disability of eighteen months, resulting in a complete cure. Throughout the text tables are printed giving the average period of incapacity from work, the result of various types of disability due both to injury and sickness. The author calls attention to the fact that a functional element in no way allied to malingering frequently thwarts successful operative measures.

Part Two deals with physical requirements as related to special kinds of work. Permanent partial disability is estimated in a general way as "time from work" and "ability to return to former occupation." He refers to many pathologic conditions which he disposes of by saying, "are neither attributed to nor aggravated by accident." Under the subject of hernia, the author states, "apart from certain cases of bullet wounds of the diaphragm, I have never come across a case that could have been attributed to or aggravated by an accident." In one chapter he discusses twenty-four physical requirements of workmen as applied to special trades. DUDLEY.

DISEASES OF THE LIVER, GALL BLADDER, DUCTS AND PANCREAS. THEIR DIAGNOSIS AND TREATMENT. By Samuel Weiss, M.D., F.A.C.P., Clinical Professor of Gastroenterology, N. Y. Polyclinic Medical School and Hospital, etc. 1099 pp. $10.00. Paul B. Hoeber, Inc., New York, 1935.

After a brief history of biliary tract disease, the author discusses the anatomy, embryology and histology of the organs under discussion and then devotes a chapter to the clinical and experimental physiology, laying the foundation for the later clinical chapters. A section on abnormalities of the biliary tract, which possibly might better have been called anomalies of the biliary tract, is quite extended, considering the frequency of these anomalies.

The examination of the liver and gall bladder is divided into two methods: First, a direct method which is accomplished by physical examination; and, second, an indirect method which includes functional tests and the examination of the biliary tract contents. The chapter on physical examination is well organized and adequately illustrated. The chapter on examination of the function of the liver outlines a large number of different tests and one has the impression that it is more encyclopedic than critical. The relative values of the various tests in clinical diagnosis are not given sufficient emphasis.

A chapter on functional diseases of the liver includes some items which might be open to argument, such as biliousness or torpid liver and neuralgia of the liver. The congestive and inflammatory disorders of the liver are adequately discussed and the pathologic processes well illustrated. The discussion of portal hypertension is from the anatomic and clinical viewpoints combined. The classification of cirrhosis is based on the pathologic lesions and recognized clinical manifestations. A rather large section is devoted to cystic conditions of the biliary tract.

The discussion of cholecystitis and cholelithiasis occupies a rather large section and properly so. The views expressed seem to represent our present knowledge of these disorders. The various diseases of the pancreas are discussed and the reader is left with a desire for more definite help in these difficult cases. A chapter on dietetic and medical management of the various diseases gives general considerations and a considerable number of sample menus which may be selected by the clinician. The book is concluded with a large list of references.

Taken altogether, this is a valuable addition to our knowledge of diseases of these organs and should be useful as a reference work for the clinician. It is written in an easy style and the book maker's art is seen at its best. The book is recommended as a valuable addition to the medical library. WATTS.

ESSENTIALS OF PSYCHOPATHOLOGY. By George W. Henry, Associate Professor of Psychiatry, Cornell University Medical School. 312 pp. $4.00. William Wood & Co., Baltimore, 1935.

In this book the various attitudes of the American School of Psychiatry, as professed by Adolf Meyer, of Baltimore, are set forth. The chapter on heredity and environment is somewhat different from what might have been written ten years ago and reflects the more conservative attitude toward this subject. The author deals rather carefully with the physiologic levels of the personality, with vegetative functions and their correlation with emotional reactions. Toxemia is discussed fully in an attempt to relate the reactions of the nervous system to certain drugs to forms of mental illness.

The basic trends in psychopathology, as developed by psychoanalytic school, are rather well explained, and the latter part of the book is given over largely to a discussion of childhood maladjustments followed by difficulties in later life. There are numerous case reports. The author is well known for his well-balanced stand regarding trends in psychiatry and this book should prove to be of value, especially to the general practitioner who desires more complete understanding of mental mechanisms. The psychiatrist would also benefit from reading it. It is not a book for lay people. HOEDEMAKER.

FOR AND AGAINST DOCTORS. An Anthology Compiled by Robert Hutchinson and G. M. Wauchope. 168 pp. $2.00. William Wood and Company, Baltimore, 1935.

This book is a compilation of opinions expressed in different ages about doctors and their work. For the most part they are opinions of nonmedical writers, including criticisms of medicine and doctors as a whole without reference to individuals. The book begins with medical proverbs such as, "tender surgeons make foul wounds," "a lucky physician is better than a learned one," "one physician is better than two, but three are fatal." Chapters include opinions from the ancients, medieval and moderns. Napoleon is quoted as saying, "medicine is a collection of uncertain prescriptions, the results of which, taken collectively, are more fatal than useful to mankind." Coleridge is thus quoted: "he is the best physician who is the best inspirer of hope." Salisbury said that "doctors are a social cement." According to Holmes, "the lawyers are the cleverest men, the ministers are the most learned, and the doctors are the most sensible." In this volume one will find many interesting comments both condemnatory and laudatory.

TUMORS OF THE URINARY BLADDER. By Edwin Beer, M.D., F.A.C.S., Visiting Surgeon, Mount Sinai Hospital, etc., New York. With 52 Illustrations, including 8 in colors. 166 pp. $3.50. William Wood & Co., Baltimore, 1935.

The author has attempted to analyze his experience with bladder tumors in 650 cases. There is still a considerable difference of opinion among urologists as to the proper methods of treatment of the various types of vesical tumor and one cannot disregard the author's experience as his follow-up observations are excellent. He concludes, and it is generally agreed, that cystoscopic high-frequency electrocoagulation should be regularly employed in all benign tumors except in rare instances.

In the malignant cases a great divergence of opinion still exists. The majority of surgeons prefer operative removal with adequate technic to meet fully the various problems presented. A small number lean to extensive operation and coagulation or to operation and radium. Some few are pessimistic enough to advise no treatment. The author definitely urges radical excision in malignant cases in preference to other physical agents such as coagulation or radium and the analysis of his cases forces the reader to support the treatment that has been outlined in this book. The author believes that in general the implantation of radium or radon seeds in the larger infllterating growth is a hit and miss affair and generally explains the poor results. The author's description of technic is most clear and impressive. This is an interesting volume for anyone desiring information about tumors of the bladder and is a valuable reference book.

Corlett.

Glands and Efficient Behavior. By Florence Bateer, Ph.D. Director, Merryheart Clinic, Merryheart Schools, Columbus, Ohio. With Introduction by Max A. Goldzieher, M.D., Endocrinologist of The Government Hospital, New York. 243 pp. D. Appleton-Century Co., Inc., New York, London, 1935.

With a background of some knowledge concerning the functions of ductless glands and some experience with behavior cases, the author presumes to attempt to show the interrelation between the two. In her presentation, fact and fiction are ruthlessly mingled. For instance, in a chapter entitled, "Evaluating Gains in Efficiency," she states that "actual income may be a very efficient measure of progress" (improved health). She reports the employment record of a carpenter who was under (gland) treatment. He was reported to have been able to make only $40 a month at odd jobs in the favorable summer seasons of 1933 and 34, yet in spite of the depression, during the unfavorable winter months of the past year, he raised his income to $140 a month by the aid of gland therapy. Naively the statement is made, "the increased energy from the medication enabled him to utilize opportunities in his community much more efficiently."

The book is written supposedly for lay consumption or for the much publicized social worker who would be an uplifter. Almost no reference is made to the fundamental scientific background on which gland therapy should be founded. Very broad statements that could not be substantiated are made and followed up by equally indefinite case histories. Under the title, "Calcium and Efficiency," this list—lack of concentration, irritability, restlessness, fidgeting, tapping feet, twiddling pencils, twisting ribbons or ties, chewing clothes or paper, twitching and jerking, tantrums and queer noises—is followed by the statement, "all of the above list, and many other symptoms of an innate restlessness and tension, are more prone to develop because of insufficient calcium (lime) than from any other physical disturbance." Such a statement is not one of fact, unless one indulges in the grossest exaggeration. Such an uncritical presentation is destined to arouse false hopes and promote more or less indiscriminate use of gland products to the discredit of gland products and the medical profession.

C. F. Davidson.

New Pathways for Children with Cerebral Palsy. By Gladys Gage Rogers, Director of Robin Hood's Barn, a Camp School for Children with Cerebral Palsy, and Leah C. Thomas, Director of Therapeutics at Robin Hood's Barn. With Photographs by Newell Green. 167 pp. $2.50. The Macmillan Company, New York, 1935.

This book gives in detail the routine for children with cerebral palsy. Relaxation and muscle training constitute a large amount of the child's education, and the indirect method of muscle training is accomplished through play, games and daily routine. Toys and apparatus, body mechanics and postural development are discussed in detail. There is a chapter on "Surgical Aspects of Cerebral Birth Palsies" by R. Nelson Hatt, M.D., of the Shriners' Hospital of Springfield, Mass.

The second half of the book deals with the child in the home and the responsibilities of the parents. The cerebral palsies comprise the greatest group of crippled children after those affected by infantile paralysis. There are too few institutions of this nature in the country. The results of the years of work of the authors should be a real aid to the physician caring for or the parents of a child with cerebral palsy.

Spickard.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R. C.S. (Eng.) Surgeon, Royal Northern Hospital, London, etc. Fifth Edition, Revised. With 341 illustrations. $6.50. 287 pages. William Wood and Company, Baltimore, 1935.

This book demonstrates the useful and practical signs of physical diagnosis relevant to clinical surgery. The ever growing tendency to depend upon the laboratory for a diagnosis rather than upon one's senses amplifies the value of this instructing and stimulating volume. The material is presented methodically and concisely. It covers the entire field of surgical diagnosis. Many new signs are described and evaluated. The author has a good sense of value and uses it honestly. The numerous photographic and colored illustrations are of exceptional quality and add much to the instructive value. The clinician and the student will find this a very useful book.

Ramsay.

Fasciae of the Human Body and their Relations to the Organs they Envelop. By Edward Singer, M.D., Department of Anatomy, College of Physicians and Surgeons, Columbia University. With 24 Original Illustrations by Elizabeth B. Cuzzort. 105 pp. $3.00. The Williams & Wilkins Co., Baltimore, 1935.

The author deals exclusively with an accurate description of the various types of fasciae, their extent, distribution and relations. Since fasciae are so briefly described in textbooks of anatomy, this monograph is especially useful as an anatomic reference. Because some of the descriptions are difficult to visualize, the illustrations are most helpful in explaining the text. These are full page in size, of unusually clear definition and artistically designed, thus adding much to the value of the book. It may be said, however, that difficulty in reading is experienced because of the use of the newer nomenclature, long Latin titles and a great many abbreviations. Some of the fascial spaces are not extensively described, particularly those relating to the hand. This volume helps to amplify the knowledge needed by one seeking anatomic information.

Dudley.

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COMMON FORMS OF HEART DISEASE

THEIR RECOGNITION AND TREATMENT*

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A discussion of the common forms of heart disease twenty-five years ago would have placed the emphasis on a somewhat different aspect of the problem than would be the case in a discussion of the same subject today. Twenty-five years ago the emphasis would have been placed almost entirely on that phase of the subject dealing with pathologic anatomy. Today the mechanical side of the problem has diminished somewhat in importance, due to the emphasis which is being placed on at least three other phases regarded as of equal importance.

Today we require more than a diagnosis of mitral or aortic insufficiency. We expect to make a more comprehensive diagnosis which will include etiology, pathology, an appraisal of the function and a statement of the status of the physiologic mechanism of the heart beat. With reference to the etiology of heart disease, we may say that at least 95 per cent of all forms of organic heart disease is the result of infection, of intoxication, or of widespread vascular changes. Of these three principal causes, infection is by far the most important, not only by reason of the frequency of its occurrence, but by reason of the type of lesion which it produces and the prolonged period of disability and of economic loss which follows this type of heart disease.

THREE MAIN TYPES OF INFECTION

Of the various forms of infection which involve the heart, the rheumatic type is the most frequent. It is generally regarded as being caused by streptococci, and constitutes approximately 40 per cent of all types of heart disease; and if only patients under 20 years of age be considered, the percentage is over 90. It is thus seen that the discovery of signs of organic heart disease in a young person in almost all cases means that one is dealing with a rheumatic type of infection which has caused a valvulitis.

Other types of infection are much less frequent and much less important. One of these is the result of syphilis and the other is the result of an acute or subacute infection of the heart valves by various types of streptococci, and occasionally by bacilli, the pneumococcus, meningococcus or gonococcus. Syphilis, when it involves the heart sufficiently to give rise to symptoms and signs, usually manifests itself from fifteen to twenty years after the original infection. This means, therefore, that its greatest incidence occurs in middle-aged adult males, which is quite the opposite of what occurs with the rheumatic type of infection.

The acute bacterial infections of the endocardium usually occur as the result of a general sepsis, in which the immediate predisposing cause is quite apparent, such as infection following typhoid, pneumonia or a gonorrheal urethritis. In such cases the infection may involve previously healthy valves, but bacterial infection of the heart valves in which it is impossible to determine the portal of entry of the bacterial cause is very frequent. This is the type of heart disease which has been described under a variety of titles, such as subacute bacterial endocarditis and endocarditis lenta. It is usually caused by the streptococcus viridans, may occur at any age, and is a little more common in women than in men; this, because it is very exceptional for endocarditis lenta to occur in a patient who has not suffered previously from the rheumatic type of heart disease. Since the rheumatic type of heart disease occurs more frequently in girls and women than in boys and men, it follows that endocarditis lenta will be somewhat more frequent in the female sex. Without any previous knowledge of the actual type of valvular deformity which is present, it is, therefore, possible from the history to make a reasonably accurate prediction of what will be found.

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*Clinical lecture read before the Forty-third Annual Meeting of Idaho State Medical Association, Boise, Ida., Sept. 9-13, 1935.

The Rheumatic Type. Given a young person with a history of rheumatic fever, frequent attacks of tonsillitis, of chorea or of growing pains, who has suffered for a number of years from breathlessness on exertion, cough and inability to lie in a fully recumbent position, it is almost certain that examination will disclose evidence of a rheumatic type of valvulitis; and if this patient happens to be a woman, the probability that the disease is of the rheumatic type is greatly increased. Furthermore, the probability is that one will find involvement of the mitral valve, because rheumatic heart disease shows a peculiar predilection toward injuring this valve. The mitral valve alone is involved in 62 per cent of all cases; it is associated with an aortic lesion in about 33 per cent of cases of rheumatic heart disease; and the aortic valve alone is involved in only about 5 per cent.

The typical deformity which follows rheumatic infection of the heart is a stenotic lesion of the mitral valve. Although rheumatic infection involves all the structures of the heart, and, therefore, may be spoken of as a pancarditis, its worst and most permanent damage is evidenced by a valvulitis. The lesions in the myocardium, endocardium and pericardium, which have been described during the course of acute rheumatic fever, usually disappear, but the acute lesions involving the valves leave permanent defects.

The typical lesion of acute rheumatic fever is one of infiltration by small mononuclear cells with here and there a large giant cell around the smaller arteries. These infiltrative lesions may be found anywhere in the body. They appear in the skin, in the joints, muscles, the central nervous system, and particularly in the heart muscle. The rheumatic infection, when it attacks the valves, gives rise to tiny thrombotic vegetations along the line of valve closure. The endothelium which covers the valves disappears, perhaps due in part to the underlying infection and perhaps due to the trauma which is caused by the closure. With the arrest of the inflammatory reaction the endothelial cells again grow over the denuded area, and the infiltration is replaced by a fibrosis with the result that the valve becomes rigid and the aperture narrowed, giving rise to the so-called buttonhole structure of the mitral valve.

This mechanical defect may be so insignificant that it will never result in any impairment of cardiac function, and it is quite probable that many presumably normal people who have suffered a minimal infection with rheumatic fever, carry with them this type of mitral lesion. All too frequently, however, there is a recurrence of rheumatic infection with the deposit of additional thrombi and an aggravation of the mechanical deformity of the valve. At least in most cases of serious rheumatic mitral disease one can elicit a history of more than one attack of rheumatic fever or of some equivalent type of infection. Therefore, the great importance of securing a careful history is obvious.

With stenosis of the valve and rigidity, there is, at least in the severe cases, an inability of the valves to close the aperture completely, so that there is not only a narrowed aperture but one which remains permanently patent. It is this patency which gives rise to regurgitation and causes us to prefer the term "mitral disease" to "mitral stenosis." The term mitral disease is a little more inclusive than stenosis, which puts the emphasis entirely on the narrowing and fails to indicate that there is an associated regurgitation. In one case the stenosis may be the dominant lesion, in another the regurgitation, but both lesions have been present at some stage of the illness. Usually the regurgitation precedes the stenosis, since it requires time for fibrotic contractions to occur.

With this picture of the mechanical defect, it is not difficult to imagine the resultant effects on the other parts of the heart. The left auricle being unable to empty itself promptly because of the resistance offered by the stenotic mitral valve, must increase in size to accommodate the volume of blood which is discharged into it from the lungs. This dilatation is followed by a very slight degree of muscular hypertrophy. In old advanced cases the dilatation causes the walls to become almost paper thin. The left ventricle, on the other hand, receives less than its normal quota of blood and, not encountering any resistance at the aortic valve, does not increase in size. The right ventricle, however, does increase in size because of the increased pressure in the pulmonary circuit.

The result of this type of cardiac enlargement makes it possible for us by percussion, or for the radiographer as a result of fluoroscopic or radiographic examination, to make a diagnosis of a mitral type of heart disease. There is an enlargement to the right and upward to the left. Even when there is an associated regurgitation, the left ventricle does not dilate nor hypertrophy to the same extent that it does in cases of regurgitation caused by stretching of the valve ring as a result of muscular failure. The engorgement of the left auricle and its expulsion of blood through the narrowed orifice also gives rise to the characteristic type of murmur which precedes ventricular systole. It is truly a diastolic and presystolic type of murmur, and must needs be so since the cause of the murmur is the auricular emptying which must precede ventricular systole.

If there is an appreciable permanent opening of the mitral valve, the contraction of the ventricular muscle results in the forcing of blood back through the mitral orifice, with the production of the systolic murmur found in mitral regurgitation. Thus there may be in rheumatic heart disease a diastolic murmur, a diastolic murmur with a rough crescendo presystolic murmur, or a diastolic-presystolic murmur combined with a systolic murmur. If these murmurs are of sufficient intensity, and if the patient's chest is of such configuration as to transmit vibrations easily, and if there is not too much muscle or fat or breast tissue, one may feel the vibrations as a presystolic thrill. The thrill is well localized in the mitral region in an area seldom larger than a silver dollar. A palpable thrill, however, is not an essential for the diagnosis of a rheumatic mitral lesion, because unless all the factors which contribute to the ready propagation of vibrations are present, the thrill may not be felt.

Although I have mentioned the murmurs of mitral disease first they are by no means as important as the character of the first tone. In mitral stenosis the first tone has a peculiar snapping sound which is highly characteristic, whereas in a regurgitation the first tone is absent. The engorgement of the left auricle is followed by pulmonary congestion, the vessels of the lungs being greatly engorged with blood so that on auscultation over the pulmonic valve area one should hear a loud snapping pulmonic second sound. This engorgement of the lungs and the auricular dilatation and hypertrophy are responsible for certain other symptoms which are particularly common in mitral disease. These patients not infrequently cough incessantly over a period of years, and as the mechanical disability progresses, the cough becomes more and more aggravated and more and more productive of a tenacious mucoid sputum, in which large pigment-containing so-called heart failure cells may be found. The engorgement also interferes with proper aeration of the blood, particularly oxygen absorption, so that the mitral patient may show a more or less dusky appearance of the lips and face. Often there is pressure on the recurrent laryngeal nerve, and in these patients we observe various degrees of hoarseness caused by unilateral laryngeal paralysis.

If the mechanical effects of a stenotic lesion of the mitral valve were to rest at this point, perhaps most of these patients could still manage to live a life of at least average expectancy. The engorgement of the lungs, however, throws an additional strain on the right ventricle, and this in turn on the right auricle, so that venous pressure is in excess of normal. The venous side of the general circulation and the lesser pulmonary circulation have an abundance of blood, while the arterial side of the general circulation is depleted. With the arrival of this stage the veins of the neck become prominent, the venules of the face are distended, the duskiness increases, the breathlessness is aggravated, and digestive difficulties make their appearance. The digestive difficulties are the result of engorgement of the great veins of the abdominal viscera and particularly the liver. As the capsule of the liver stretches to accommodate the increased volume of blood, the liver increases in size and one is then able to feel the liver, one, two, three or four fingers below the costal margin. This visceral engorgement results in variable digestive disorders such as belching, heartburn, flatulence and in disturbances of renal function. With increased venous pressure and stasis of blood in the great veins of the lower extremities, the valves become incompetent, varicosities develop, and finally transudation of water into the soft tissues takes place.

We are accustomed to call this stage of the disease the decompensated heart. Long before this stage is reached, however, another symptom usually will have made its appearance. The muscle of the auricle, as though convinced of the futility of contracting as a unit, begins to contract in an irregular, aimless manner. There are fibrillary contractions here and there instead of a coordinated auricular contraction due to the uniform spread of the excitation wave. This is known as auricular fibrillation and occurs more frequently in rheumatic mitral disease than in any other type of organic heart disease. When it appears, the characteristic thrill and murmur of mitral stenosis disappear. The appearance of auricular fibrillation in organic heart disease, however, may be a beneficent thing, at least so far as the auricles are concerned, in that they are no longer contracting against the resistance to the expulsion of their contents caused by the stenotic mitral valve.

Fibrillation, however, does have some objectionable features, in that many of the impulses which originate in the auricle pass through the auriculoventricular bundle and give rise to abortive or frustrane ventricular beats. The abortive nature of ventricular activity is apparent by comparing the apical rhythm with that at the wrist; palpation at the wrist may give a rate of anywhere from 60 to 100, while auscultation at the apex may show a rate of from 80 to 140 or 150, the deficit representing beats of such small volume and force that the wave is insufficient to reach the wrist. Since these abortive beats contribute very little to the circulation, they must be regarded as a useless expenditure of energy. It is our custom, therefore, to attempt to reduce their number and frequency, and this is best done by the administration of digitalis. A slow fibrillation is fairly well tolerated for long periods of time. If fibrillation is of recent origin it may be advantageous to attempt to restore normal rhythm by the administration of quinidine, but if it is of long standing I rarely attempt it.

The patient with rheumatic mitral disease having once begun to show symptoms of cardiac failure, and particularly if he has a fibrillating heart, will require digitalis medication more or less continuously for the rest of his life. The object to be attained in digitalis medication is to keep the ventricular rhythm as slow as possible without giving rise to the undesirable effects possessed by digitalis. These side effects of digitalis include loss of appetite, nausea, vomiting, dizziness, disturbance of vision, ventricular extrasystoles, and occasionally mental aberration. They occur usually only with poisonous doses or with therapeutic doses which have been continued for too long a period of time, permitting the accumulation in the body of an excess of digitalis principles.

It does not matter a great deal which of the numerous preparations of digitalis is used, if the physician who is using them is thoroughly acquainted with the characteristics of that particular preparation. The infusion is used by some men, but it is a very unstable preparation. The tincture is used very generally, but I believe with even less reason than exists for the infusion. It should be well known, both to physician and to pharmacist, that liquid preparations of digitalis deteriorate quite rapidly and that after a year they may possess scarcely 15 per cent of their original potency. I have seen any number of cases of decompensated heart disease which had been properly treated by the physician except for the fact that he had prescribed tincture of digitalis and, failing to obtain the therapeutic effect even with large doses, was now afraid to give digitalis in other forms. For these reasons it is usually better to use a reliable preparation of the dry leaf, made and standardized by a reputable pharmaceutical firm, for use before the expiration of a specified period of time.

In determining the dosage of digitalis to be given to a patient, one should calculate the amount which will produce a digitalis effect. Roughly, this is about 1 grain for every 10 pounds of body weight; a man weighing 150 pounds, therefore, could take from 12 to 15 grains of digitalis within a short period of time—say twenty-four to forty-eight hours—without showing signs of poisoning, but the dosage of digitalis should not be based on the weight of a patient during an edematous stage, because under these circumstances a person who normally weighs 150 pounds may weigh 180 or even 200 pounds. If the amount of digitalis to be given were to be calculated on this basis, the diuresis which occurs with digitalis administration might result in such a concentration of the drug that poisonous effects would be almost certain to appear.

Having calculated the amount of digitalis required, one may give 50 per cent of it at once, to be followed by 25 per cent of the total in six hours and the remainder in two six-hour periods; thus the entire calculated safe dosage is given in a single twenty-four hour period. Thereafter it will be necessary to give digitalis in such amounts as will just maintain the digitalis effect; usually this will be from 1.5 to 3 grains daily. Where one desires a very rapid digitalis effect, one may take advantage of the fact that a high blood calcium enhances the digitalis effect; therefore, one may give either intramuscularly or intravenously, 15 to 20 cc. of 10 per cent calcium gluconate, repeating it with each dose of digitalis. If given intravenously it should be injected very slowly.

For less serious degrees of decompensation the patient may be kept on 1.5 to 3 grains of digitalis for periods of ten days, alternating with three or four days of rest. This is usually sufficient to slow a fibrillation so that useless and abortive contractions of the ventricles are reduced to a minimum despite the presence of fibrillation.

Digitalis, while the mainstay in the treatment of severe stages of decompensation, requires adjuvant treatment, consisting partly of drug therapy and partly of physical measures. Of all the preparations used in treatment of decompensated heart disease, digitalis is of course the most important, but morphine easily ranks second in importance. The intensely orthopneic patient, sitting up in bed supporting the weight of the thorax on the extended arms, eyes bulging, lips dusky, and convinced that every breath he takes will be his last, can be relieved of his apprehensiveness and of his dyspnea more quickly by morphine than by any other method known to me. One-fourth grain of morphine gives such a patient relief of anxiety, reduces the irritability of the medullary centers, and makes it possible for him to lie back comfortably and get some sleep and rest, which in turn slows his heart, with the result that next morning he is so much improved as to suggest that a miracle has taken place. In the presence of cardiac decompensation with orthopnea, one should not hesitate to use morphine because of any fear that the patient will be converted into a drug addict. In all probability his stay in the hospital will be sufficiently long to permit the substitution of some other drug, such as pantopon or codein, and then some synthetic hypnotic drug of which there is a great variety, and of which every physician usually has his own favorite.

The recovery of the patient is, of course, dependent upon establishment of a redistribution of the blood, thus permitting a more normal interchange of gases with a relief of anoxemia and a consequent improved nutrition of the heart muscle. The heart muscle, like all other tissues of the body, when called upon for increased work must have an adequate supply of oxygen and of glucose, and unless this is furnished, progressive failure of the cardiac muscle is inevitable. In congestive failure with high venous pressure, many physicians secure prompt relief of an embarrassed right heart by withdrawal of 500 cc. of blood, which temporarily at least reduces the venous pressure and, therefore, the load on the cardiac muscle. It is a measure, however, which cannot be used frequently, and, therefore, our effort toward the redistribution of blood and lowering of venous pressure must be directed along other channels.

The administration of digitalis to physiologic effect results in an improvement in cardiac efficiency and in an increased diuresis, but unless it is supported by other measures, its diuretic effect may not be adequate to clear up the edema. We are, therefore, forced to stimulate the elimination of fluid by way of the gastrointestinal tract or by way of the kidneys. The administration of vegetable cathartics, such as podophyllin, or saline cathartics such as sodium sulphate or magnesium sulphate, in a quantity sufficient to cause several watery stools, may be productive of much good. There are two points which should be kept in mind in using cathartics; one is that, if a dyspneic patient is given enough cathartic to induce a large number of copious watery stools, he may be completely exhausted by the effort involved; the other point is that many of these patients are either stuporous or semi-comatose. Magnesium has a profoundly depressing effect when it is absorbed into the body, and in the presence of stupor or coma the absorption of small amounts of magnesium may aggravate the stupor. In a patient who is not stuporous, magnesium salts are unobjectionable, because then the sudden onset of stupor may be recognized and appropriate antidotes may be administered. The poisonous effects of magnesium are controlled at once by an intravenous injection of calcium.

The other plan for the elimination of water involves stimulation of the kidney tubules. It has long been known that the mercurials, including calomel, have a diuretic effect, but it is only within recent years that organic mercurials have been prepared in which the diuretic effect is tremendously increased without increasing the cathartic effect. These mercurials, of which salyrgan may be taken as a type, are given once or twice each week by intravenous injection in a dosage of from 1 to 2 cc. Their effect is greatly enhanced, if some acidifying salt such as ammonium nitrate, ammonium chloride or calcium chloride is given for three or four days preceding the injection of mercury. These drugs should be given in an amount which will produce a moderate degree of acidosis, and for an adult usually 15 grains from four to six times a day is required. The mercurial diuretics should not be given to patients who have a true glomerulonephritis, because I am satisfied that I have seen hematuria and an aggravation of the renal lesion of glomerulonephritis produced by their use. They should be reserved for use in patients whose only renal symptoms are the result of passive congestion. Even here they may do harm if used too frequently.

The dyspnea which occurs in persons with congestive heart failure is the result of pulmonary engorgement which produces a decrease in vital capacity and an increase in the amount of stimulation to the reflex respiratory mechanism. Although there may not be an appreciable degree of oxygen unsaturation of the arterial blood, the administration of oxygen by an approved method is often beneficial.

With this brief reference to the recognition of mitral disease and its treatment it becomes necessary to give at least some mention to the aortic valvulitis which occurs in association with a mitral lesion, and less frequently as a single lesion. Here the valvulitis rarely if ever results in a pure stenotic valve, but always results in some degree of incompetence. The physical findings are dependent on whether there is a pure or a combined lesion, but when it is a pure regurgitation they are identical with those seen as a result of aortic regurgitation due to syphilis.

There is one important difference, however, between an aortic insufficiency caused by rheumatic disease and one caused by syphilis. For some reason which is not well understood, aortic insufficiency on a syphilitic basis is less well tolerated than aortic disease due to rheumatic infection. Too, one may see adults forty or forty-five years of age suffering from rheumatic aortic disease, although one rarely sees a rheumatic mitral lesion of any severity after that age. Most severe mitral lesions have run their course before that time.

(To be Concluded)

Autotransfusion in Treatment of Wounds of Heart. Charles M. Watson and James R. Watson, Pittsburgs (Journal A.M.A., Feb. 15, 1936), used autotransfusion to combat the excessive loss of blood resulting from a stab wound of the heart. As far as they can determine by a review of the literature, this is the first time autotransfusion has been used in the treatment of this type of injury. In view of its marked success in this instance, they believe that it should receive further trial as an adjunct to cardiorrhaphy in those cases in which the loss of blood is sufficient to threaten the immediate survival of the patient. The patient returned for an examination four months after discharge from the hospital, stating that he felt fine and was working again. The chest was essentially unchanged except for some improvement in the deformity and a roentgenogram showed thickened pleura but normal heart and lung shadows. An electrocardiogram was negative.

DIURETICS IN THE TREATMENT OF CARDIAC EDEMA*

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Prevention of heart disease will prevent heart failure. At present only about ten per cent of cardiovascular disease (the syphilitic type) is strictly subject to control,[1] although admittedly an indeterminate amount of cardiac injury may be prevented by the judicious management of rheumatic fever and hyperthyroidism. Therefore, a large practical problem remains which the physician must recognize as two-fold, (a) the prevention of the acceleration of already existing heart disease, so that the cardiac patient may live as comfortably and efficiently as possible; and, (b) the treatment of heart failure. This lecture will be limited largely to the use of diuretics in the edema of congestive heart failure. Some effort will be made to indicate the theory of action of two diuretic drug groups; individual drugs must necessarily receive cursory reference.

That diuresis may follow a combination of rest, digitalis and diet is established. Therefore, as some cardiac edema patients respond to these measures in part or in whole, brief space must be devoted to this phase of edema therapy.

DIET

Often the heart failure patient with edema receives a light diet, fruit juices and limited protein intake. When prolonged, this routine has prompted two reactions: first, a diminished serum protein in the blood; and, second, a storage of base in the body, i. e., an increased alkali reserve. Both of these changes tend to promote water retention, the exact opposite of the result desired. Several contributions in past years have sought to reconcile this apparent discrepancy between clinical practice and modern biochemistry. Trends in dietary management and the influence of acid-base balance on diuresis are reflected in several discussions notable for their practical and experimental approach.

Barker[2] has recommended an acid ash diet, in which a low ratio of sodium to potassium is maintained. Potassium chloride, two to five grams daily, is substituted for sodium chloride. This substitution of potassium for sodium was suggested by previous

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* From the Department of Internal Medicine, University of Virginia Medical School, University, Virginia.

* Presented before the Fourteenth Annual Meeting of Pacific Northwest Medical Association, Spokane, Wash., June 27-29, 1935.

[1] Wood, J. E., Jr.: Etiology and Prevention of Heart Disease. Virginia M. Monthly, 60:67-71, May, 1933.

[2] Barker, M. H.: Edema as Influenced by Low Ratio of Sodium to Potassium Intake; Clinical Observations. J. A. M. A., 98:2193-2197, June 18, 1932.

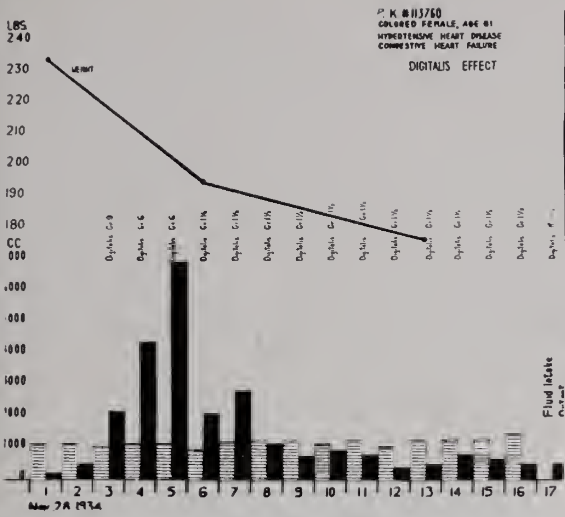

Fig. 1. R. K., 113760. Apparent excellent response to rest in bed and gr. 21 of powdered digitalis leaf administered orally over a period of three days. Relatively small amount of digitalis required is probably due to previous partial digitalization.

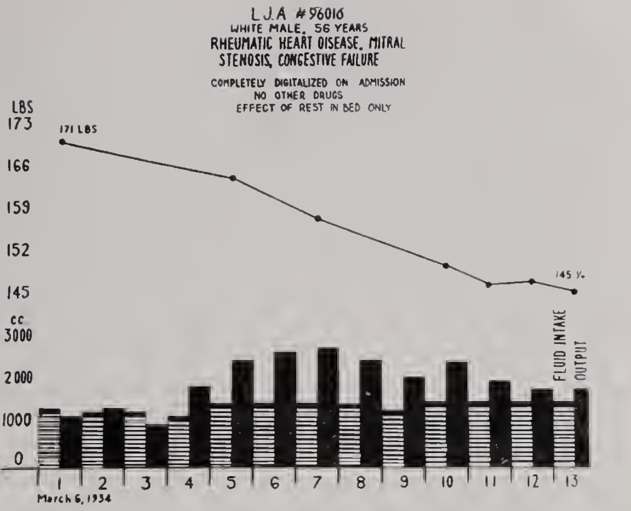

Fig. 2. L. J. A., 96016. Patient thoroughly digitalized prior to hospital admission. No additional measures used in treatment except rest in bed and fluid restriction. Moderate but definite diuresis.

experimental work of others, indicating the importance of sodium in fluid storage and prompt fluid loss with potassium substitution. Practically, Barker has been able to show loss of edema in twelve of sixteen patients given potassium chloride, provided they were placed on a full general diet with an acid ash excess and a low sodium to potassium ratio.

Recently Keith and Binger[3] have discussed potassium salts in some detail as individual and adjunct diuretics. They prefer potassium nitrate but caution against the use of any potassium salt in the face of appreciably diminished renal function. While not vital in some heart failure patients who respond quickly to rest and drug therapy, diet, from the standpoint of both mineral control and acid-base equilibrium, may become extremely important in prolonged obstinate cardiac edema.

During the past few years it has been shown that the actual serum protein values in cardiac edema, though low at times, seldom fall below the edema level and are not thought to seriously affect water retention.[4] However, in the long standing heart failure case full protein maintenance is doubly necessary, first, to meet the general metabolic needs; and, second, to furnish a source of acid radicals important in diuresis. This will be discussed in a subsequent section.

REST, DIGITALIS AND FLUID RESTRICTION

Rest in bed, proper digitalization and restriction of fluid intake will produce loss of edema fluid in many patients. It has been our custom with few exceptions to digitalize all patients with congestive heart failure. More dramatic improvement has naturally occurred in patients with auricular fibrillation, though congestive heart failure patients with normal rhythm may benefit markedly from full digitalization (fig. 1). In patients with cardiac edema quite satisfactory diuresis not infrequently accompanies rest in bed alone (fig. 2). These two charts illustrate the necessity for a period of observation during rest and digitalization. Our other illustrative examples do not always present an adequate control period prior to the exhibition of certain diuretic drugs. However, this lecture does not represent a controlled study in diuresis but attempts to set forth our practical experience with patients in whom frequently it has been expedient to administer certain drugs rather than adhere to experimental uniformity.

We have been less inclined lately to rigid fluid restriction except in long standing instances of edema with a very limited output of urine. During the actual period of marked diuresis following drug administration the fluid intake should be temporarily increased. Rigidity in the limitation of water is unwise in this respect and elasticity would seem a safer and more comfortable policy for the patient. Instances of temporary psychosis following rapid dehydration are frequent enough to claim attention. Recently the apparent association of pulmonary infarction after a brilliant diuretic result has impressed us in several cases. Many such occurrences and a logical explanation of the mechanism would be necessary to establish this latter point.

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[3] Keith, N. M. and Binger, M. W.: Diuretic Action of Potassium Salts. J. A. M. A., 105:1584-1591, Nov. 16, 1935.

[4] Herrmann, G.: Some Blood Chemical Findings in Congestive Heart Failure Before and After Treatment. South. M. J., 25:934-938, Sept., 1932.

No doubt other unfavorable body changes may follow too rapid dehydration and, whereas no conclusive data are available at present, we sense the possibility and attempt to meet the days of excessive water output with a somewhat increased intake. Ordinarily, only the specific diuretics, particularly those used intravenously, cause single days of tremendous urinary output. Generally diuresis following rest and digitalis comes on and fades gradually and it would seem that adjustment to dehydration would, therefore, occur with less disturbance. For this and other reasons we try rest, digitalis and fluid restriction first in the treatment of cardiac edema.

However, these measures, while sufficient for some, may be temporary and incomplete remedies in many patients. Numerous substances have been recommended for their diuretic effect, but this discussion will include only the xanthine and mercurial diuretics and their combined action with certain inorganic salts.

XANTHINE AND MERCURIAL DIURETICS

Mechanism of Diuresis. Recently an attractive explanation has been offered for the action of theophyllin-ethylene-diamine (aminophyllin) and mersalyl (salyrgan). Schmitz,[5] using the creatinine method of Rehberg, shows that a xanthine derivative (aminophyllin) will increase glomerular filtration with no constant change in tubular reabsorption. Thus, as more fluid passes through the glomerular filter without much change in tubular reclamation, the net result must be increased urinary flow. The idea that this increased glomerular filtration may be due to an increased glomerular blood flow brought about by the xanthine action has been strengthened by he experimental studies of Medes and Herrick[6] who simultaneously measured glomerular filtration and blood flow in uninephrectomized dogs. Their figures show a general parallelism between glomerular filtration and blood flow to the kidney.

Conversely, following the use of mercurial diuretics, only a slight increase in glomerular filtration occurs but a definite decrease in tubular reabsorption. Thus, in the case of mercurial diuretics about the same amount of fluid passes through the glomerular filter but less fluid is taken back by the tubules than normally, so that a net increase in urine takes place.

This theory of diuretic action is clear and attractive but may be open to doubt, owing to relatively recent criticism of the Rehberg method. This method has depended upon the assumption that creatinine is filtrable from the plasma and not reabsorbable by the tubules nor excreted by them. Smith[7] finds that creatinine is excreted from the tubules of certain fish, the dog and probably man. If this be true, estimations of glomerular filtration by the creatinine clearance method may be in error, though this may be only relative. Whether this invalidates the theory of diuresis originally suggested by Schmitz is not yet clear.

Less attractive are other theories of diuresis, implying extrarenal action of diuretic drugs, a conception more difficult to visualize.

Xanthine Diuretics. In this and subsequent sections only summary reference can be made to individual drugs. In each instance usually accepted dosage will be stated and, where possible, mention will be made of newer clinical observation.

Theophyllin (theocin) is probably the oldest, best known and most efficient of this group, having been used as a diuretic some thirty-three years. The usual dosage of five grains three or four times daily generally forces discontinuation after two or three days, owing to nausea. The gastric disturbances following theophyllin have led to the development of similar drugs, all purporting to cause less discomfort but almost invariably proving less efficient as diuretics.

We have found theobromine-calcium-salicylate (theocalcin) a definite addition. It frequently produces satisfactory diuresis in dosage of fifteen grains three or four times daily and we agree with Stewart[8] that it may be used beneficially over a somewhat longer period than the others. For example, as shown in figure 3, patient L. J. A. was admitted to the hospital carrying some sixteen pounds of edema from heart failure. Outpatient records showed that the patient had been fully digitalized for weeks. Rest and theocalcin produced an adequate diuresis with loss of edema and recovery from congestive heart failure.

Theophyllin-ethylene-diamine (aminophyllin) in dosage of one and one-half to three grains four times daily has been occasionally a satisfactory diuretic, but not an unusually potent one. Poor diuresis from this drug may depend in some instances upon failure to keep plasma chlorides at an

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[5] Schmitz, H. L.: Studies on Action of Diuretics; Effect of Euphyllin and Salyrgan Upon Glomerular Filtration and Tubular Reabsorption. J. Clin. Investigation, 11:1075-1097, Nov., 1932.

[6] Medes, G. and Herrick, J. F.: Blood Flow to Kidney and Creatinine Clearance. Proc. Soc. Exper. Biol. & Med., 31:116-119, Oct., 1933.

[7] Smith, H. W.: The Kidney in Health and Disease (Contributions by Eminent Authors), pp. 92-107, Lea & Febiger, Philadelphia, 1935.

[8] Stewart, H. J.: Use of Theocalcin in Treatment of Heart Failure of Congestive Type. J. Clin. Investigation, 8:389-417, April, 1930.

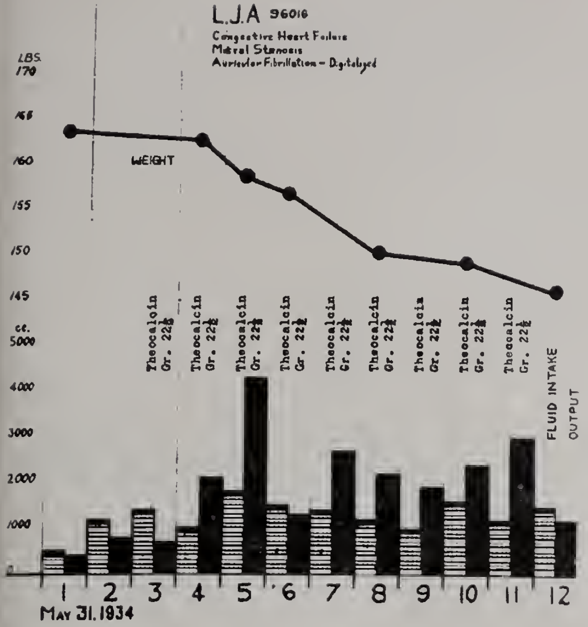

Fig. 3. L. J. A., 96016. Same patient as Fig. 2 entering hosiptal three months later with severe congestive heart failure. Again completely digitalized prior to admission with apparent additional diuretic response following the administration of theocalcin, gr. 22½ daily.

effective level.[9,10] Aminophyllin is also used with good results intravenously. We have not found this necessary with the mercurial drugs available. A number of other xanthine modifications have appeared from time to time, theoretically promising greater diuretic efficiency with less gastric irritation. Some of these have been tried in a desultory fashion, with no strikingly new effects. As Binger[11] remarks, the ideal diuretic has not been discovered.

Xanthine diuretics should be tried after digitalization and before turning to the mercurial drugs. Noteworthy of the xanthines is their better action in patients with hypertensive and arteriosclerotic heart disease.[12] They are less efficient in rheumatic heart disease.

Mercurial Diuretics. Calomel served as a mercurial diuretic for many years but gave way to merbaphen (novasurol) shortly after the introduction of the latter in 1920. Although merbaphen (novasurol) proved to be an extremely powerful diuretic with the added advantage of intravenous administration, it retained some unpleasant toxic effects, namely, stomatitis, colitis and hematuria. Less toxic and more widely used today is mersalyl (salyrgan). The accepted dosage almost invariably is an intravenous initial one-half cc.; if no reaction, one to two cc. at two- or three-day intervals for four to six doses (fig. 4). Intravenous administration is preferred by us, although many use the drug intramuscularly. It is our experience that mersalyl (salyrgan) is much less likely than merbaphen to cause local necrosis however injected; stomatitis, colitis and hematuria have also been rare occurrences since the adoption of mersalyl as the mercurial diuretic of choice.

Mersalyl may be administered over long periods[13] without apparent injury to the patient, although generally we do not exceed six successive injections without a rest period between series. In spite of the obvious safety superiority exhibited by mersalyl (salyrgan) over its predecessor, reasonable precaution should be observed. Renal tubular degeneration following the use of this drug probably occurs at times. There is still a strong feeling that it should not be used indiscriminately in the treatment of edema, should the renal reserve show definite impairment.

Certain Inorganic Salts and Mersalyl (salyrgan). It has been known for some time that certain salts, ammonium chloride and ammonium nitrate, enhance the effect of mersalyl (salyrgan) when given in adequate dosage, four to eight grams daily (60 to 120 grains), several days prior to and during mersalyl (salyrgan) administration. Since ammonium chloride and nitrate may be diuretics in their own right, though somewhat uncertain ones, the question has naturally arisen whether these ammonium salts have a synergistic action with salyrgan or simply produce a summation effect. In a recent unpublished work now available in summary Fulton, Ethridge and Myers[14] attacked the problem directly in normal dogs and showed that the acidifying salts plus salyrgan produced marked diuresis, whereas alkalinizing salts actually inhibited the diuretic action. They believe the action of these salts to be synergistic rather than summative and dependent upon alteration of acid-base equilibrium rather than the availability of particular ions for excretion.

Clinically it would seem wise to use ammonium chloride in cardiac edema, expecting and permitting some loss of alkaline reserve, thereby favoring diuresis. However, should the cardiac patient present a diminished kidney reserve, care must be

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[9] Barker, H.: Abstract of Discussion. vide 3 supra.

[10] Curtis, G. M.: Action of Specific Diuretics. J. A. M. A., 93:2016-2018, Dec. 28, 1929.

[11] Binger, M. W. and Keith, N. M.: Effect of Diuretics in Different Types of Edema. J. A. M. A., 101:2009-2016, Dec. 23, 1933.

[12] Marvin, H. M.: Digitalis and Diuretics in Heart Failure with Regular Rhythm, with Especial Reference to Importance of Etiologic Classification of Heart Disease. J. Clin. Investigation, 3:521-539, Feb., 1927.

[13] Smith, C.: Use of Salygran in One Patient, over Period of Three Years, for Recurring Ascites and Edema Associated with Cardiac Failure. J. A. M. A., 102:532, Feb. 17, 1934.

[14] Fulton, M. N.: Ethridge, C. B. and Myers, D. W.: Influence of Inorganic Salts on Salygran Diuresis. J. Clin. Investigation, 14:715, Sept., 1935.

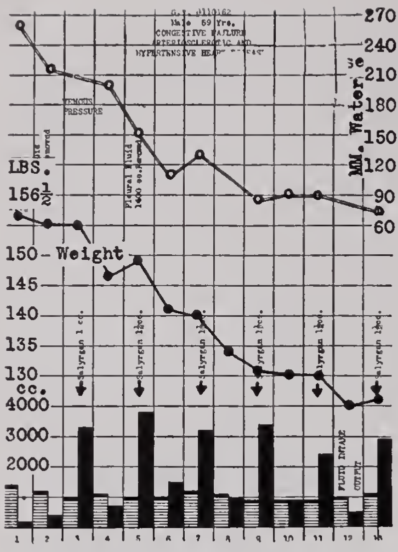

Fig. 4. G. P., 110162. Congestive failure, arteriosclerotic and hypertensive heart disease. Satisfactory diuretic response to intravenous injections of salyrgan (indicated by arrows). Venous pressure and body weight curves indicate the accompanying rapid improvement. Note that venous pressure falls to normal values six days before weight curve drops to lowest level. (17)

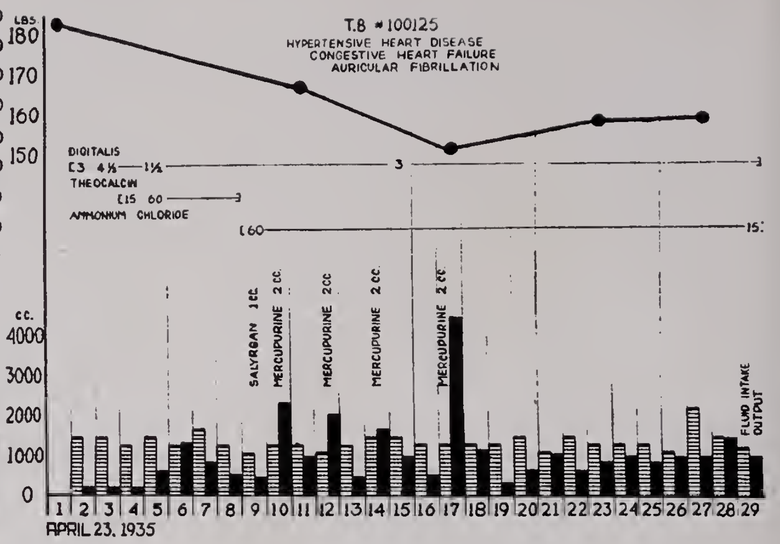

Fig. 5. T. B., 100125. Apparent success following intramuscular injections of 2 cc. mercupurine after a single failure to produce diuresis with 1cc. of salyrgan intravenously. Patient was digitalized and received ammonium chloride.

taken to prevent high grades of acidosis and possible nitrogen retention. In cardiac edema with diminished kidney function we use a milder acid producing salt, ammonium nitrate. Attention has been directed to this drug many times.

The foregoing discussion does not imply that mersalyl (salyrgan) may not be highly efficient when used alone. Frequently we try it alone first (fig. 4); later, in the event of failure, repeating a series of injections plus ammonium chloride.

The observation cited above relative to the inhibiting effect of alkalinizing salts carries an important clinical significance. Diets such as the Sippy regime and others, leading to storage of base, may well defeat the desired diuretic action.

Combined Use of Mercurial and Xanthine Diuretics. Recalling briefly the paragraph on the mechanism of diuresis, presumably the xanthines primarily increase filtration while the mercurial diuretics decrease reabsorption. Obviously, if both effects could be produced at once, considerable augmentation of urinary output should occur. Actually, this is frequently done. For example, theophyllin[15] may be given by mouth during salyrgan exhibition.

Relatively recently Crawford[16] has discussed the combination of a mercurial salt similar to salyrgan with theophyllin, sold in this country as "mercupurine." This is a liquid drug in ampoules and may be injected intramuscularly or intravenously in one to two cc. doses similarly to salyrgan. In fifteen patients with cardiac edema Crawford obtained excellent diuretic effects without toxic manifestations. His observations indicate that mercupurine generally produces a better result than salyrgan.

Mercupurine in our own limited experience appears efficient and nontoxic. In a few patients we have tried both the intramuscular and intravenous administration with a good diuretic result and no unfavorable side reactions. In one instance this drug proved successful following a salyrgan failure, although here again this patient was not subjected to rigidly controlled conditions (fig. 5).

The value of diuretics in the treatment of cardiac failure need not be questioned. Generally speaking, patients with hypertensive and arteriosclerotic heart disease respond best to diuretic drugs. Should rest, fluid restriction, diet and adequate digitalization fail in the treatment of cardiac edema, the xanthine and mercurial diuretics should be tried preferably in the order mentioned. Combination of these drugs with certain salts and with each other may promote diuresis[17].

For illustrative purposes cases of advanced cardiac edema have been referred to in this lecture. This does not imply that the diuretic drugs should be used as a last resort. Quite the contrary attitude should be taken as emphasized by Friedman, et al. Edema may increase cardiac work and impair cardiac efficiency, and the early use of suitable diuretic drugs may, therefore, have a double advantage.

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[15] Friedman, B.: Resnik, H., Jr., Calhoun, J. A. and Harrison, T. R.: Effect of Diuretics on Cardiac Output of Patients with Congestive Heart Failure. Arch. Int. Med., 56:341-350, Aug., 1935.

[16] Crawford, J. H. and McDaniel, W. S.: Some Observations on Mercurial Diuretics. Ann. Int. Med., 8:1266-1273, April, 1935.

[17] Wood, J. E., Jr., Capaccio, G. E., Weaver, W.: Venous Pressure and Body Weight Determinations in Congestive Heart Failure. Va. Med. M., 62:271, Aug. 1935.

INTRAVENOUS SUCROSE AS A DIURETIC

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Helmholz,[1] in 1923, showed that repeated doses of hypertonic sucrose solution given intravenously to rabbits were virtually nontoxic and promoted the excretion of water. In the same year Keith's[2] studies of experimental dehydration, using dogs emphasized the marked water excretion without significant deleterious effects which followed intravenous injection of hypertonic sucrose solution. Various observers have noted its marked diuretic effect without evidence of toxicity as an incidental result in its use for the reduction of increased intracranial pressure.

One of us (J.G.S.) in his urologic practice has long sought a potent diuretic other than mercurials for relieving anuria in postoperative urologic patients. Recently, in two such clinical cases in which intravenous glucose, caffeine sodium benzoate and alkalies had proved ineffective, 50 per cent sucrose (Lilly) in repeated intravenous doses of 20 to 50 cc. produced such startling diuresis that we have been led to begin animal experimentation and thorough clinical trial of this substance as a diuretic.

Ten animal experiments performed thus far (with the cooperation of Dr. G. E. Berget and the Department of Physiology of the University of Oregon Medical School) show the normal urinary output of dogs to be more than doubled during the period immediately following sucrose administration. We are hoping to publish later the detailed report of our investigations.

The following clinical case is appended as an illustration of the results obtained so far.

S, 7705. Mr. N. B., Chinese, aged 63 years. Height 66 in., weight 163 lbs. The patient was admitted to Good Samaritan Hospital Nov. 18, 1935, complaining of inability to urinate. Physical examination revealed an enlarged, firm, smooth prostate, greatly enlarged cervical lymph nodes, and a heart extending 15 cm. to the left of the midsternal line in the 5th interspace with loud systolic murmurs over the mitral and aortic areas.

On admission temperature, pulse and respiration were 98.4°, 60 and 18 respectively and blood pressure was 184/90.

Diagnoses of Hodgkins' disease and benign prostatic hypertrophy were established by surgical removal and pathologic examination of the affected glands. A tentative diagnosis of aortic insufficiency was made by several examining clinicians. Cystoscopic examination showed an intravesical enlargement of the prostate gland, a severe cystities and a trabeculated bladder.

On December 2 the second stage of a suprapubic prostatectomy was performed under ethylene-oxygen anesthesia and a Pilcher bag inserted for hemostasis. Below is a summary of daily intake and output together with notes on all medication given.

Date	*Intake*	*Output*	*Medication*
Nov. 27, 1935	3540 cc.	1600 cc.	Digalen, M. xv, t.i.d. Codeine gr. j. with acetylsalicylic acid gr. xv.
Nov. 28, 1935	4620 cc.	4250 cc.	Same as above
Nov. 29, 1935	4900 cc.	5500 cc.	Liq. pot. ars. gtt. iv., t.i.d.
Nov. 30, 1935	3840 cc.	4600 cc.	Same as above
Dec. 1, 1935	3960 cc.	4280 cc.	Same as above
Dec. 2, 1935	4200 cc.	3900 cc.	Morphine gr. ¼ with atropine gr. 1/150 1000 cc. 10 per cent glucose intravenous.
Dec. 3, 1935	4240 cc.	50 cc.	Digalen, M xv. 1000 cc. 5 per cent glucose i-v.
Dec. 4, 1935	5540 cc.	350 cc.	260 cc. 50 per cent sucrose (divided doses i-v.)
	Plus 1000 cc. drainage		
Dec. 5, 1935	5300 cc.	650 cc.	80 cc. 50 per cent sucrose i-v. Morphine gr. ¼.
	Plus over 1000 cc. drainage		
Dec. 6, 1935	5950 cc.	Drainage. No sucrose.	
Dec. 11, 1935	Discharged in good condition.		

Intravenous Sucrose as a Diuretic.

Blood urea nitrogen, taken Dec. 6 was 25.5 mg. per 100 cc. Alkali reserve figure, taken Dec. 7, was 44.

Selling Bldg.

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[1] Helmholz, H. F.: Renal Changes in the Rabbit Resulting from Intravenous Injection of Hypertonic Solution of Sucrose. J. Pediat. B:144-157, July, 1923.

[2] Keith, N. M.: Experimental Dehydration; Changes in Blood Composition and Body Temperature. Am. J. Physiol. 68:80-96, March, 1924.

CORAMINE

ITS VALUE IN THE TREATMENT OF CORONARY DISEASE AND CARDIOVASCULAR DISTURBANCES*

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Up to the present there has existed much uncertainty as to the possible value of drugs in the treatment of coronary disease. Digitalis, indispensable in the presence of congestive failure, is probably of no benefit in the earlier stages of coronary involvement; indeed, according to the observations of Gilbert and Fenn[1], it may be actually injurious. The xanthine derivatives, so popular with many clinicians because of their supposed ability to effect coronary dilation, seem incapable of lessening the frequency of anginal attacks or in any other way to exert a favorable influence in these patients.[2]

For the past eight months, we have been utilizing coramine, a 25 per cent aqueous solution of pyridine-beta-carbonic acid diethyl-amide, in ambulant patients, giving a history of definite anginal attacks and presenting evidence on physical examination or electrocardiographically of coronary involvement. Our results have been so uniformly favorable that we feel coramine is a very valuable drug in patients of this type.

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* From Cardiac Clinic, Stuyvesant Polyclinic.

[1] Gilbert, N. C. and Fenn, G. K.: Effect of Digitalis on Coronary Flow. Arch. Int. Med. 50:668-683, Nov., 1932.

[2] Evans, W. and Hoyle, C.: Effects of Nitrite on Inverted T-Wave in Human Electrocardiogram. Lancet. 1:1109-1113, May 27, 1933.

The pharmacologic studies of Uhlmann[3] indicated that coramine stimulates the medullary centers and also exerts a direct action on the myocardium, increasing respiration and also both extent and force of cardiac contractions. The striking stimulation of respiration by coramine appears to have excited most interest, leading to the employment of the drug in various conditions of respiratory depression. Because of the fact that the preparation, although rapidly absorbed after oral administration, may be injected even intravenously in doses up to 5, 10 or 15 cc. in profound depression, coramine has been used extensively in the treatment of poisoning by narcotic agents. Thus, Maloney and Tatum[4] find that "coramine is the more certain in effect, enduring in action, and safe in administration in the presence of depression due to morphine, urethane, chloral hydrate, tribromethanol and ether." Reese,[5] also, believes coramine to be most effective for stimulation of the vital centers, and expresses the opinion that it "should be used as the antidote in accidental, experimental and suicidal intoxications induced by barbituric acid derivatives."

Wood[6] reports excellent results from the employment of coramine to overcome depression or hasten recovery from avertin narcosis, drawing the following conclusions:

1. Coramine is a definite stimulant to respiration and circulation depressed by avertin, novol or in surgical shock.
2. The toxicity of coramine is low, so that large and repeated doses may be employed if the necessity exists.
3. The use of coramine is suggested in all cases where early recovery from anesthesia, especially avertin-gas-ether sequence, is desired.

European observers, likewise, have found coramine to be an excellent respiratory stimulant. Especially interesting are the reports of Killian and Uhlmann[7] and Killian[8] on the use of coramine to counteract avertin depression and the discussion by the latter author of the role of coramine as a respiratory stimulant in poisoning by various narcotic agents. Crohn[9] asserts that "a great number of cases of poisoning, which would formerly have culminated fatally, can be saved in a relatively short time by the new method of coramine in large doses."

Important as is the recognition of the respiratory stimulation by coramine, the resulting tendency to overlook equally as valuable circulatory effects is to be deplored. As previously mentioned, Uhlmann finds coramine exerts a stimulating action directly on the heart muscle; and he is of the opinion that the drug causes vasoconstriction from stimulation of the vasomotor center, his tracings showing a marked rise of pressure, approximating that produced by epinephrine. However, it appears that the pressor action of coramine is not always pronounced, depending, apparently, on the condition of the vasomotor center and the consequent vascular response. Leyko,[10] using the heart-lung preparation of Starling, finds that coramine dilates the coronary vessels, which suggests the possibility that the direct action of the drug on the vessel walls opposes the central stimulation, a view that gains support from the experiments of Massart.[11] Points of considerable practical importance were brought out by Bürgi and Gordonoff[12]; namely, (1) that coramine potentiates the cardiac action of digitalis, without apparently being synergistic, so far as toxicity is concerned; (2) that prior administration of coramine increased the resistance of the heart to depressant poisons.

Coramine is employed largely in Europe as a "circulatory stimulant" in acute infectious diseases and in other conditions where it is supposed that cardiac depression exists. In this country, Lank-

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3. Uhlmann, F.: Eine neue campherähnlich wirkende Substanz, Ztschr. f. d. ges. Exper. Med., Berl., 43:556-583, 1924.

4. Maloney, A. H. and Tatum, A. L.: Cardiazol (metrazol) and Coramine as Cardiorespiratory Stimulants. Arch. internat. de pharmacodyn. et de thérapie. 42:200-211, 1932.

5. Reese, H. H.: Method to Counteract Narcotic and Intoxicating Effects of Barbituric Acid Drugs. Wisconsin M. J. 32:530-532, Aug., 1933.

6. Wood, P. M.: Coramine in Denarcotization and Resuscitation. Am. J. Surg. 22:86-91, Oct., 1933.

7. Killian, H. and Uhlmann, F.: Ueber die Reduktion der Avertinnarkose durch Coramin. Arch. f. exper. Path. u. Pharmakol. 163:122-149, 1931.

8. Killian, H.: Coramin als Antidot bei Vergiftungen durch Narkotiea und Hypnotica. Klin. Wchnschr. 12:192-197, Feb. 4, 1933.

9. Crohn, W. H.: Lebeusrettende Wirkungen durch hohe Coramin-Dosen bei Vergiftungen. Med. Klin. 28:118-119, Jan. 22, 1932.

10. Leyko, E.: Action of Some Heart Tonics. J. Pharmacol. & Eper. Therap. 38:31-49, Jan., 1930.

11. Massart, J.: Contribution à l'étude expérimentale de l'action Cardio-vasculaire de la Coramine chez le Chien. Arch. internat. de pharmacodyn. et de therapie. 37:34-60, 1930.

12. Bürgi, E. and Gordonoff, T.: Ueber de Kombinierte Anwendung der Digitalispräparate mit den. camplierahnlich Wirkenden Substanzen Coramin. Klin. Wchnschr. 7:2098-2099, Oct. 28, 1928; Zur Frage der prophylaktischen Tonisierung des Herzens. Med. Klin. 24:1443-1445, Sept. 14, 1928.

ford[13] in several papers has stressed the value of coramine for its influence in circulatory disturbances, drawing attention especially to the relief the drug affords from the dyspnea so often present in acute congestive failure. More recently, Daly[14] reports favorably on coramine, stating that it is not only "an effective drug for bringing about an improvement in the respiration and the circulation in conditions of depression, but possesses the advantages of prompt yet persistent action."

As mentioned already, we have used coramine exclusively for its influence on the circulation in patients with obvious involvement of the coronaries. The type of case in which the drug has been employed by us is illustrated in the following brief histories.

Case 1. L. R., male. Age 55. Diagnosis, coronary occlusion.

History: Pain in chest for past seven years, intermittent attacks of severe nature, the last one nine months ago. Pain was violent with numbness of the entire left shoulder and arm, constriction of the chest and sense of suffocation. B. P. dropped 30 mm. mercury to 90/66.

Treatment: Coramine 3 cc. and morphine sulphate ¼ gr. by hypo., same dose repeated in fifteen minutes, then coramine 1½ cc. every four hours by hypo for three days, then coramine 30 mm. by mouth each four hours. Symptoms began to abate within a half hour and were greatly relieved at the end of three hours. After the third day, dial ½ gr. t.i.d. was given with coramine continuously for six weeks, at which time the patient was allowed to sit up as symptoms had abated sufficiently.

He has been taking coramine for nine months, has had no further attacks though he has an occasional slight pain in the chest. B.P. at this writing 120/90. Pulse 78.

Case 2. R. L., female. Age 55. Diagnosis, cardiac arrhythmia, myocardial failure.

History: Rheumatism three years ago when she was confined to bed six weeks. Now complains of palpitation, cyanosis and distress on walking. Examination shows systolic mitral murmur, aortic systolic murmur, arrhythmia with irregularity about 14 per minute. E.K.G. shows both auricular and ventricular extrasystoles.

Treatment: Digifoline tablets 1½ grs. (1 cat unit), t.i.d. for eight weeks. Pulse became normal in character within two weeks, remaining so until the eighth week, when it again became intermittent. We then prescribed coramine 30 mm. t.i.d. continuing the digifoline. Pulse was full and regular at next visit and symptoms subsided. We withdrew coramine and at next weekly visit the irregularity was again present. We prescribe coramine 30 mm., t.i.d. and at next and subsequent visits a full and regular pulse is recorded.

Case 3. M. N., male. Age 56. Diagnosis, coronary involvement.

History: Has precordial pain of pressure type for past eight months. Pain constantly present, radiating down left shoulder and arm. B.P. 140/90, heart sounds distant, E.K.G. shows negative T-wave in leads 1 and 2 with slurring and notching of Q.R.S. in all leads.

Treatment: Dial ½ gr. t.i.d. and coramine 30 mm. q.i.d. Patient felt greatly relieved within a few days; no distress but occasional pain not of the constriction type. Second E.K.G. in one month shows a definite positive change in the T-wave. This patient has never had a typical coronary attack.

Case 4. S.G., male. Age 49. Diagnosis, thromboangiitis, arteriosclerosis and myocarditis.

History: Hemorrhoidectomy four years ago, arteriosclerosis for past two years gradually becoming worse. Hearing is now difficult, severe headache for past eight months, dizziness, forgetfulness, pain and coldness of feet, precordial pain and weakness.

Examination: B.P. 190/106, pulse normal, heart sounds distant, no pulsation of tibial artery of right leg, slight in left. E.K.G. shows slurring of Q.R.S. and low voltage in all leads.

Treatment: Salt-free diet, dial ½ gr. t.i.d. and coramine 30 mm. t.i.d. Precordial distress is now relieved, his B.P. is 160/94. Headache, dizziness and tinnitus remain.

Case 5. F.S., female. Age, 45.

History: Diabetic for past five years. About a year and a half ago began complaining of shortness of breath and pain in the precordial region; also had a sense of constriction in the upper chest, pain at times radiating up the neck and both shoulders. Walking aggravated these symptoms. B.P. 150/95. Pulse 90.

Treatment: Upon first coming under observation, she was given various theobromine preparations for nearly a year with no relief of symptoms. She was then put on coramine 30 mm. t.i.d. She felt better in a few days and has continued this treatment with continued favorable effect for several months. B.P. now 140/185. Pulse, 80.

In addition to the improvement in subjective symptoms, the patients included in our series gave objective evidence of the favorable influence of coramine. This was manifested by improvement in the cardiac rhythm and force; by increase in the strength of the heart sounds; clearing up of cyanosis; and, of considerable interest, disappearance of the T-wave inversion.

It is interesting to speculate on the possible mechanism involved in bringing about the marked improvement of patients with coronary vessel disease under the influence of coramine. As already pointed out, Leyko has demonstrated that the drug dilates the coronary vessels; this, theoretically, should improve the blood-flow to the cardiac muscle and consequently its nutrition. Another factor which may be of importance is suggested by the observations of Rothschild and Kissan.[15] These authors noted that general anoxemia was capable of precipitating an anginal attack. Coramine, through its influence on the respiratory center, should lead to increased respiration and simultaneously to increased blood-flow through the pulmonary capillaries, with resultant better oxygenation of the blood and removal of the anoxemic state.

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[13] Lankford, J. S.: Coramine. Clin. Med. & Surg. 37: 670-673, Sept., 1930.

[14] Daly, A. A.: Therepeutic Value of Coramine in Certain Pathological Conditions. M. J. & Rec. 137:467-469, June 7, 1933.

[15] Rothschild, M. A. and Kissin, M.: Production of Anginal Syndrome by Induced General Anoxemia. Am. Heart J. 8:729-744, Aug., 1933.

Although coramine alone definitely improves cardiac function, we have found it advisable occasionally to use digitalis in conjunction with the former drug. Where this has been done, we have been struck by the very rapid response that occurred, an observation in harmony with the results of Burgi and Gordonoff, whose animal experiments show synergism to exist between the two drugs so far as therapeutic effects are concerned. In attacks of angina of a severe nature, it is often necessary to administer morphine along with coramine, but on prolonged use of the latter drug it will generally be found that the necessity for morphine disappears as cardiac function improves.

CONCLUSIONS

1. Coramine, in addition to being a safe and dependable agent for stimulation of the respiration, has been shown to exert a definitely favorable influence on the circulation.

2. The ability of coramine to afford relief and effect improvement in a series of ambulant patients with coronary disease has been so striking that we feel that a trial of the drug is justified in all patients subject to anginal attacks or presenting other evidence of impaired coronary circulation.

METHOD OF RETAINING A SOFT RUBBER CATHETER IN THE MALE URETHRA

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A survey of recent literature reveals that there are two principal methods of retaining a soft rubber catheter in the male urethra. One is by the use of catheters with special retaining tips, as the Pezzer type, or the split tip type, designed by Lemel of Cleveland, which is introduced with a forked whalebone stilet; or the type described by Ullrich, in which braided silk is threaded through the base of the catheter and out an extra eye about 2½ inches from the tip and then tied to the tip, so that after introduction of the catheter, the silk may be tightened and tied with the formation of a loop of catheter within the bladder. The second method is by the use of adhesive plaster tapes applied to the catheter and to the penis in various ways.

All of these methods have their disadvantages. The Pezzer type and Lemel type are difficult to introduce. All of the special retaining tips are more likely to become incrusted with salts precipitated from the urine than are the ordinary soft rubber catheters. Adhesive plaster applied to the catheter will often slip when moistened by the mucus secreted by the urethra, and is not clean. Adhesive plaster applied to the penis is very uncomfortable, pulls hair, slips, must be frequently reinforced and is not clean.

A method I have employed in several cases with complete satisfaction utilizes an elastic rubber bandage material that will anneal when two pieces are held firmly together with the thumb and finger. The material I have used is put on the market by the Universal Manufacturers Distributors of Chicago, is called Super Bandage by them, and is erroneously labeled "antiseptic."

A piece of the bandage is cut T-shaped, the cross of the T being one inch wide and long enough to encircle the penis just back of the glans with enough overlap for annealing. When annealed the tension should be just great enough to prevent slipping over the glans without constricting the circulation. This is not difficult. The upright of the T is cut ½ inch wide and 2½ inches long with wings ⅜ inch by ⅜ inch on either side of the base of the upright. These wings are wrapped about the catheter, after it has been introduced into the bladder, and fixed to it by firmly holding the wings and catheter between the thumb and finger for a short time. The catheter must be clean and dry.

A second piece of the bandage tissue ½ inch wide by 3½ inches long is annealed to the tissue that encircles the penis and to the wings that hold the catheter at a point on their circumference opposite the upright of the T, to equalize the pull on the penis and catheter. The harness is clean, comfortable, seldom breaks, and is easily and quickly repaired, making the care of these patients a simple and satisfying experience.

The Autonomic Nervous System: Essential Anatomy. Albert Kuntz, St. Louis (Journal A.M.A., Feb. 1, 1936), states that the autonomic nervous system consists of the ganglions that are anatomically and functionally connected with the central nervous system through the visceral efferent components of the cerebral and spinal nerves, and the nerves that arise in these ganglions. The autonomic nervous system may be divided into (1) the cranial division, which is connected with the brain stem through preganglionic components of the third, seventh, ninth, tenth and eleventh cranial nerves. (2) the thoracolumbar division, which is connected with the spinal cord through preganglionic components of the thoracic and first and second lumbar spinal nerves, and (3) the sacral division, which is connected with the spinal cord through preganglionic components of the second, third and fourth sacral nerves. The author's discussion of the essential anatomy of the autonomic nervous system entails the sympathetic system, the parasympathetic system, the ratio of ganglionic to preganglionic neurons, the central autonomic centers and conduction pathways, the visceral reflex arcs and the anatomic basis of surgery involving autonomic nerves.

SIGNIFICANCE OF ITCHING IN OBSTRUCTIVE JAUNDICE*

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This study is the result of a detailed review of twenty-eight cases of jaundice. Much has been written about itching, but very little about the itching associated with obstructive jaundice. However, there are three fundamental facts that stand out.

The first fundamental fact is that, while the itching of a jaundiced patient may be associated with the jaundice, it may also come from an entirely different cause. In the twenty-eight cases studied, I found that itching was mentioned in ten, but in two of them it was not caused by the jaundice. In one, itching came ten days after a blood transfusion, and was associated with urticaria. In the other it occurred whenever the patient was given morphine. As obstructive jaundice sometimes produces itching, may we not assume that these patients often have a lowered threshold to itching? Then we can expect that the many other causes will produce it more frequently in the presence of obstructive jaundice.

Second, nonobstructive jaundice does not itch. This has been known from a clinical standpoint for a long time. This statement or hints of it are found in many of the standard textbooks. Six of my cases of jaundice were nonobstructive. In not one of them was I able to find that jaundice caused any itching, although three of them had impaired liver function as shown by liver tolerance tests. Therefore, if itching occurs in the course of nonobstructive jaundice, its cause is not the jaundice. Conversely, if itching occurs in the course of jaundice of unknown origin, and is not traceable to another source, the jaundice is likely to be obstructive in nature. The presence or absence of itching may have great clinical significance.

The third fundamental fact is that some cases of obstructive jaundice itch and some do not. This was true in my series. Twelve did not itch, although ten of them had impaired liver function or marked liver damage. Eight cases with obstructive jaundice itched, and I believe the itching was associated with the jaundice. Four of these had positive liver function tests. Two had generalized carcinomatosis and two had no tests or other data to estimate the function of the liver.

The bile salts have long had the finger of suspicion pointed at them as the cause of itching. McVicker[1], in 1926, reported five cases of marked itching with slight obstructive jaundice. He thought that itching was an expression of liver damage and impaired function. I think this is true. He also thought that it was associated with retention of bile salts in the blood. I think this is false.

Much experimental work has shown that bile salts given by mouth are absorbed and very quickly excreted by the liver. It does this without causing itching. Chabrel, Bernard and Bariety[2] have injected two to three grams of biliary salts intravenously and raised the blood values five times above normal. To their surprise no pruritus resulted. Malamud[2] reports five cases of obstructive jaundice. In one case no itching occurred and biliary acids were found many times in the blood. In the other four cases bile acids were absent from the blood when itching was present, and reappeared as the itching subsided. In one case, itching left and bile salts appeared in the blood, although the jaundice increased. This last case is not so startling, when we consider the origin of the bile pigments and the bile salts.

Bile pigments are not made in the liver, but in the reticuloendothelial system. As long as there is obstruction, the bile pigments will increase in the blood, regardless of the condition of the liver. Bile salts, on the other hand, are manufactured by the liver. What finally happens to them in the body is not known. It is reasonable to suppose that a sudden obstruction of the bile will suppress the formation of biliary salts along with the other functions of the liver, and if the absence of bile salts in the presence of jaundice causes itching, it would be more apt to occur at the onset or following an exacerbation of jaundice. This was true in the four cases reported by Malamud, and was also true in the eight cases of itching that we have particularly studied.

Since making this study, I have had the privilege of seeing a woman of fifty, in one of several attacks of gallstone colic with jaundice and itching. Dr. Carter, at the County Hospital, gave her three grains of bile salts by mouth at noon and again at supper time. The itching was already better by the second dose, and that night she had a comfortable sleep for the first time in a week. This dose was given three times a day, and the itching left completely within thirty hours. After several days, the dose was reduced to three grains a day. Itching restarted in a few days on this dose.

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* Read before a meeting of King County Medical Society, Seattle, Wash., Jan. 20, 1936.

1. McVicar, C. S. and Weir, J. F.: Dissociated Jaundice. M. Clin. North America. 10:499-508, Nov., 1926.

2. Malamud, T.: Pruritus in Icterns Not of Cholalic Origin. Presna Med. Argent, 17:1402-1404, March 10, 1931.

At this time Dr. Rawson did an exploratory laparotomy. Although the gallbladder was full of stones, cancer of the gallbladder with generalized metastasis was found and the abdomen closed without further surgery. Three grains of bile salts given by mouth, three times a day controlled the pruritus for over two weeks, then three grains four times a day prevented all itching until she died.

Dr. Partlow of Olympia has told me of four cases, one of carcinoma, the others of acute catarrhal jaundice. He gave three exicol capsules a day. Each capsule contains one grain of bile salts. The first case was relieved of itching within forty-eight hours, the others within twenty-four hours. Ralph Loe, reported to me another case. He had been giving an elderly lady with obstructive jaundice three grains of fel bovis and two grains of pancreatin by mouth. She stopped taking her medicine for several days and started to itch. Two hours after restarting her medicine the pruritus left.

I realize that this is a study of a small number of cases, as many reports are given today; also the histories were not made with this study in mind, but just the ordinary run of the mill, and much desirable laboratory work and data are absent.

However, I feel that we are justified in making a preliminary report pointing to the following conclusions.

1. Itching associated with obstructive jaundice indicates the lowering of or absence of bile salts in the blood.
2. By the same token, the presence of itching in obstructive jaundice is a clinical indication of impaired liver function.
3. Bile salts given by mouth have rapidly relieved the itching in six cases of obstructive jaundice.

DISCUSSION

C. H. Hofrichter: This paper contains a very helpful observation, for which the author is to be congratulated. If he is correct, that bile salts placed within the intestinal tract will relieve the individual of this terribly distressing subjective symptom, itching, we are to be congratulated in having this method called to our attention and placed at our disposal. At times the aged, who have not been fit subjects for surgery, have suffered most acutely from these symptoms, for which I knew no relief and in which morphine was not the answer.

With respect to the theoretical aspects involved in the significance of itching in obstructive jaundice, the author opens a field in which the progress of the past years has been very limited. Strides have been made in the diagnostic and surgical methods employed and in the better evaluation of the background supporting surgical procedures, such as the functional ability of the heart, kidneys and liver and the mechanism of glucose metabolism.

The most productive worker in the theoretical field is easily considered to be Ivy[3], who has given us a review on the subject of physiologic disturbances incident to obstructive jaundice. Outside of the toxicity of the bile itself as a disturbing factor, he lists the following possibilities of influence: (a) excessive biliary pressure on liver function, (b) reflexes due to excessive biliary pressure, (c) the absence of bile in the intestine, (d) the effects secondary to these changes.

Dr. Metheny's contribution of the absence of bile within the blood due to the inability on the part of a congested liver to produce it would come under a and d of this grouping. He has shown the clinical value of his method, and if his future observations show a diminution or absence of bile salts in the blood prior to the alleviation of the symptoms and a rise in this bile salts in the blood coincident with and subsequent to the alleviation of the symptoms, then we can go the full distance with him in his theory.

For purposes of this discussion, permit me to elaborate on section c, the absence of bile "within the intestine." From our clinical experience, we can all call up cases in which this lack has produced marked gastrointestinal symptomatology. The chest men have been quick to recognize the significance of these grastrointestinal disturbances in producing skin sensations in the thoracic region. Listen for a moment to White's[4] description of disturbances in this neurodermatitic mechanism, as he detects its presence and differentiates it from true angina pectoris.

"The differential diagnosis of angina pectoris is generally a simple matter. This symptom should not be confused with the dull, prolonged heart ache or sharp, stabbing, knife-like or pins and needles pains of neurocirculatory asthenia or of big, pounding hearts in nervous persons, even though such pain may be referred occasionally to the shoulder or down the left arm, as a numbness. It is this type of pain, which is most often called pseudo or false or secondary angina pectoris. Such terminology is misleading."

There are four causes of pain in the upper chest not due to involvement of the cardiovascular apparatus itself: (1) trouble with bones, joints and bursae, (2) peptic ulcer, (3) gallbladder disease, (4) gaseous distention of the gastrointestinal tract, particularly of the stomach and colon.

The presence of adequate bile in the intestine subsequent to the removal of obstructive pathology in the duct system is often evidence of the fact that gaseous distention is relieved by its presence. Other beautiful contributing examples of this disturbance of the neurodermatitic mechanism might be given, but they pull us afield in this short review of the subject of itching in jaundice, which goes on to death in our patients.

A great deal of emphasis is laid upon the toxicity of bile itself, when present in increased amounts in the tissue. The constituents of the bile are: (1) pigment, (2) bile salts, (3) cholesterol.

Recent work of Horral and Carlson[5], and Still[6] shows that bile salts are toxic and that bilirubin is not toxic. Cholesterol, present in toxic doses of bile, is not toxic. The disturbing, toxic factor is considered to be the bile salts. Even though bile salts when injected directly may be toxic, that does not prove, as Ivy says, that their passage into the general circulation through the obstruction of their exit into the intestine is the sole cause of the phenomenon seen in obstructive jaundice.

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[3] Ivy, A. C.: Physiologic Disturbances Incident to Obstructive Jaundice; Review. J. A. M. A. 95; 1068-1072, Oct. 11, 1930.

[4] White, D.: Diagnosis and Medical Treatment of Angina Pectoris. Ann. Int. Med. 7:218-228, Aug., 1933.

[5] Horral, O. H. and Carlson, A. J.: Toxic Factor in Bile. Am. J. Physiol. 85:591-606, July, 1928.

[6] Still, E. U.: On Toxicity of Purified Bile Preparations. Am. J. Physiology. 88:729-736, May, 1929.

The following questions in jaundice asked by Ivy are significant:

1. Do the bile salts accumulate in the blood and tissues sufficiently to be toxic?
2. What is the effect of a prolonged, but not acutely toxic, increase in the circulating bile salts?
3. Is it possible that bile pigment may not be acutely toxic, but the gradual accumulation of bile pigment in the tissues and its prolonged action on them as occurs in jaundice may produce disturbances?

Ivy is inclined to feel in summary, that:

1. The cause of death is probably a summation of a number of influences, the principal one of which is the disturbance of function in all tissue cells, wherever located (before kidney tissue), due to the prolonged stasis of bile salts and bile pigment.
2. While bile in adequate doses is lethal, it is not known that the actual amount of bile which gets into the blood stream in jaundice will prove fatal.
3. While it is known that jaundice effects the liver, it cannot be proven that acute liver insufficiency occurs in jaundice.
4. It is not proven that the changes in nutrition and metabolism alone are fatal.
5. In fact, the patient with prolonged jaundice presents a picture that results from a number of physiologic mechanisms.

If one severe subjective symptom of this obscure complex can be relieved by placing bile within the intestinal tract, it is a simple and constructive method of therapy, for which our colleague deserves worthy commendation.

C. C. Goss: The subject of itching in the presence of obstructive jaundice as well as other forms of liver disease is an extremely interesting one to me and therefore I have been much pleased to hear what Dr. Metheny has had to say about it. My lament has been that, even though we could trace the causal relationship of liver disease and itching or other forms of skin allergy, there has been little we could do about it, but here we have called to our attention an agent that seems to give relief from the itching of at least one form of liver disease. Itching is a symptom of forms of liver disease other than those causing jaundice.

My interest in the subject was first aroused a few years ago when I observed two cases of severe and persistent uritcaria which were relieved after cholecystectomy. Many other such cases have been reported. My feeling has been that many if not all forms of skin allergy may be dependent upon faulty liver function; in fact, I have a feeling that eventually all forms of allergy may be linked up with this.

As you know, one of the important functions of the liver is that of detoxication. Many substances of a toxic nature absorbed from the intestinal tract are detoxified and rendered harmless by the liver. My theory has been that when the liver is damaged we have a failure of this detoxifying function and then toxic elements such as abnormally split protein products may be allowed in the general circulation producing skin allergy.

Insofar as explaining how bile salts relieve itching in obstructive jaundice, I wonder if it may not be due to the fact that in the absence of bile salts in the intestinal tract we have an excessive amount of putrefaction and, therefore, greater absorption of toxic products for the liver to deal with, which situation is relieved by the oral administration of bile salts. Be that as it may, a number of cases of itching in obstructive jaundice are relieved by the administration of bile salts and we should feel grateful to Dr. Metheny for calling it to our attention.

David Metheny: I wish to thank those who have discussed my paper. The theory of the cause of itching that they propose is not the same as mine. We know that patients with obstructive jaundice have many gastrointestinal symptoms that are relieved by taking bile salts by mouth. The absence of bile salts in the intestines might be the cause of the itching as well as the absence of bile salts in the blood.

I should like to reemphasize these two points:

1. As bile salts are made by the liver, one could easily expect them to be diminished in the blood stream as an expression of liver damage in obstructive jaundice.
2. Malamud found bile salts absent from the blood when patients itched and present in the blood when the itching had stopped.

The information I have at present will not give the true scientific answer to this problem, but the fact remains that administration of bile salts by mouth was followed by the relief of itching in six cases of obstructive jaundice, and I shall be interested to observe if intravenous administration does not have the same effect.

CAUSES AND TREATMENT OF URINARY RETENTION*

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Urinary retention is common to all age periods. However, age largely determines the pathology of the obstruction to which the individual has fallen heir, for retention in childhood is usually of congenital origin, in early adult life of neisserian inception and in later life it is almost entirely due to changes in the prostate gland. Conversely, though age may largely determine the pathology of the obstructive factor, the symptoms and pathology of the resulting retention are the same for all periods of life.

Of the local symptoms of retention, frequency is by far the most common. In the child it may manifest itself as a form of enuresis, while in the aged it is classically evident as the gradually increasing nocturia of the prostatic.

Difficulty of urination may be the earliest indication of retention, ever increasing until the retention is complete and paradoxical incontinence or constant dribbling of the overdistended bladder supervenes. Dysuria or painful urination may be particularly distressing, and especially with the advent of infection, which aggravates all symptoms, it may be excruciatingly severe. If the retention be insidious in its course, or negligence either on the part of the patient or physician allows this con-

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[*] Read before the sixty-first annual meeting of Oregon State Medical Society, Gearhart, Ore., Sept. 19-21, 1935.

[1] Campbell, M. F.: Chronic Pyuria in Juveniles. J. Urol. 31:205-217, Feb., 1934.

dition to progress, then evidences of renal insufficiency supervene, merging finally into that more alarming symptom complex, uremia.

Campbell,[1] in a series of 110 male children with pyuria, found approximately fifty per cent were associated with some degree of urinary retention. Of these approximately fifteen per cent were due to congenital valves in the posterior urethra, fifteen per cent to atresia of the meatus, six per cent to hypertrophy of the verumontanum, and fifteen per cent to contracture of the bladder neck. "Cord" bladder and stricture of the urethra, which are of lesser frequency, complete the picture. The same author has also reported three cases of phimosis, in which uremic death resulted.

Retention in children should receive the same meticulous care that is so necessary in the preoperative treatment of the prostatic, surgery being deferred until the condition of the patient permits. Final diagnosis in many instances depends on cystoscopy, a procedure which is well tolerated by children.

Phimosis is cured by circumcision; meatal atresias are remedied by meatotomy. Hypertrophy of the verumontanum, congenital valves and bladder neck contractures are best treated transurethrally by the use of an electrocutting current. A miniature cold punch has also been used in bladder neck contractures. Suprapubic approach may be used where instruments are not available.

Conditions causing retention in early manhood are usually of neisserian origin. In acute gonorrheal prostatitis the usual history is that of infection contracted one to two weeks previously, with gradually increasing frequency, pyuria and with some terminal hematuria. Later but only infrequently complete retention with suprapubic pain results. With the advent of abscess formation, however, complete retention is the rule.

The differentiation between acute prostatitis and prostatic abscess is one of degree and is made by rectal digital palpation alone. Rectal examination should be gentle for in acute prostatitis as in abscess the prostate is very tender. Rectal digital palpation reveals the prostate as usually much enlarged, firm and irregular in acute prostatitis, while in prostatic abscess a definite sense of fluctuation is imparted to the examining finger. With abscess formation, the pain in the rectum is more severe and the patient complains of a sense of fullness in the perineum.

Treatment, if based on pathologic and clinical data, is comparatively simple. Contrary to some writers, we believe surgery has no place in the treatment of acute prostatitis. Retention may be relieved by catheterization, which should be carried out every six to eight hours, using a small soft rubber catheter. Heat, in the form of hot rectal irrigations two to three times per day and hot sitz baths in our estimation, is preferable. For small abscesses entirely confined within the prostate, the sound operation first described by A. R. Stevens in 1927 is the method of choice. Hospitalization is brief and the results are excellent.

Large prostatic abscesses, those accompanied by much periprostatitis, and abscesses which have spread beyond the confines of the prostate are best treated by drainage through the perineum. The urethra should not be opened.

Prostatic abscesses of nonvenereal origin usually occur as a complication of some systemic disease. We have seen two as a complication of diabetes. Perineal drainage is the method of choice, and the sound operation is contraindicated.

Of the sequelae of gonorrhea causing retention, stricture of the urethra is by far the most common. Usually a history of neisserian infection antedates the symptoms of stricture by several years. A history of several previous attacks of gonorrhea or of heroic treatment is not uncommon. A urethral discharge containing gram-negative diplococci as a complication of acute retention may often be interpreted as a new infection superimposed upon a neglected stricture, the associated inflammatory reaction completing the obstruction. As a rule retention due to stricture is complete or absent. The gradual increase of residual urine as noted in the prostatic does not occur.

By a brief but complete examination the physician satisfies himself that the existing retention is due to stricture. Preparation for relief should be immediate. If conditions permit, the patient should be placed in a warm bath for fifteen minutes. This procedure may cause the patient to void spontaneously. At any rate instrumentation is facilitated. Relaxation of the perineal structures is essential, and for this reason the patient is placed on the examining table with the head and trunk slightly elevated. Prior to any instrumentation, the same aseptic preparation as for catheterization should be carried out. It is then permissible to pass either a soft rubber catheter or French number twenty sound per urethra to locate the site of stricture.

A Philips whip is next introduced. No one method of manipulating the whip will serve to pass all strictures. However, by imparting a slow twirling motion to the whip and withdrawing it one and one-half to two inches before again engaging the stricture in most instances will be sufficient. Fashioning a corkscrew tip on the whip by winding it about the point of a mosquito artery forceps greatly facilitates its passage through tortuous strictures. If the history of stricture is of some duration, and complete retention is present, then in the majority of cases the physician had best be content with only passing a Philips whip which should be tied in place by means of a bit of thread and adhesive.

The patient should be ordered to bed and sedatives may be administered for alleviation of pain. In this manner the patient will slowly decompress his bladder by voiding around the whip. In some instances, some hours may elapse before the edema in the strictured area subsides and the patient finds relief. The whip should be left in approximately eighteen hours before withdrawal for further instrumentation.

Clinical accidents have been responsible for the formulation of certain definite rules regarding urethral instrumentation. If local anesthesia is used in the urethra, it should be instilled prior to any instrumentation, and it should be an infallible rule never to inject a local anesthetic into the urethra, once instrumentation has been attempted, for death has followed closely such procedure.

Rapid dilatation of a stricture when a patient is in retention, even only to the size of nine to ten French has been followed by death in less than twenty-four hours. Rapid dilatation or failure to maintain rigid asepsis may be followed by a so-called urethral chill, which is a true bacteremia. This may be severe, with an elevation of temperature to 105° or 106° F. Metastic foci, such as acute joint conditions and the so-called pyelitis, in reality a pyelonephritis, are not uncommon.

Surgical intervention is not indicated in the majority of cases. Periodic dilatation is the method of choice. Dilatation should be gradual. Increase in the size of the followers should as a rule never be above number two or number four French at any one treatment. When the caliber of the stricture has reached the equivalent of number twenty French, sounds may be passed, but below this the use of a whip with its dilating follower is the safest procedure. However, in a few instances, where the stricture is impassable or does not lend itself readily to dilatation, operative intervention is justifiable. For strictures in the pendulous urethra, internal urethrotomy is indicated, external urethrotomy being reserved for strictures in the bulbomembranous portion. We believe that in the treatment of strictures which are definitely of neisserian origin the physician will do well at least to attempt confining the operation of external urethrotomy to those instances where the offending stricture is complicated by infection, such as periurethral abscess or phlegmon. Reconstruction of the strictured area should be attempted only after all other methods have been given fair trial. We believe, therefore, that instances justifying such radical procedures are rare.

The causes of urinary retention in men of the sixth decade or over are few. They are almost entirely limited to changes in the prostate gland. Of this age group about thirty-five per cent show pathologic changes in the prostate, and perhaps one-third of these at the most will require surgery.

Pathologically any lobe or group of lobes may undergo benign hypertrophy, or as the result of an obscure inflammatory process the prostate may undergo sclerotic change. Finally, there is the true fibrous median bar which is a thin abrupt elevation of the posterior vesical lip, and is associated with a markedly contracted and sclerotic internal vesical sphincter.[2]

Acute retention may be the first symptom of prostatism or, if the patient disregards the gradually increasing frequency and associated difficulty in urination, he finally reaches the condition of chronic urinary retention.

The life of an individual suffering from retention of urine is often in the hands of the physician who first sees him. At present specific emphasis is being placed on rigid asepsis in catheterization of the patient and during the period of drainage. As Keyes remarks, the cleansing of the anterior urethra is largely mechanical, so after thorough cleaning of the external parts, gentle but liberal irrigation with any mild antiseptic solution will answer the purpose.

Of paramount importance in the prevention of both infection and shock is the avoidance of trauma. All urethral manipulations should be gentle. Small caliber catheters such as ten to fourteen French in many cases suffice. Instances are few where a soft rubber catheter will not pass the obstruction. Occasions where a modified natural curve silk catheter can not be passed are negligible, and situations demanding the use of a soft rubber catheter stretched on a stylet or mandrin are rare. Should one not be able to catheterize the patient with the above armamentarium, suprapubic cystotomy is the only alternative.

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[2] Randall, A.: Surgical Pathology of the Prostatic Obstructions. Williams & Wilkins, Baltimore, 1931.

We believe that patients with chronic urinary retention should be decompressed. Decompression should be gradual and continuous, for the removal of the first few ounces of urine will reduce the overdistension of the bladder twenty-five to fifty per cent.[3] The removal of these few ounces is largely responsible for the circulatory and renal shock which follows in many instances. This point alone emphasizes the futility of treating the patient with chronic retention by removing a few ounces of urine at a time. Decompression may be completed in from twenty-four to forty-eight hours.

Should the patient be unable to tolerate an indwelling catheter because of a large subcervical hypertrophy, marked intravesical intrusion, presence of stone or irritability due to cystitis, then continuous catheter drainage is inadvisable. If there is severe vesical spasm or fever, with or without chills due to the presence of a catheter, or epididymitis, marked hematuria, and finally if catheterization is impossible, then immediate suprapubic cystotomy is justifiable.

We have no quarrel with those individuals who believe that nearly all prostates may be attacked transurethrally. Transurethral approach is definitely indicated in dealing with median bar formation, the small sclerotic prostate and secondary contractures following prostatectomy. It may be employed to advantage in moderate enlargements of the subcervical and median lobes, when they occur singly or where there is only moderate lateral lobe intrusion. Its use is also justifiable in the few instances where the removal of small portions of the gland may allow an elderly individual to round out his remaining few years in comparative comfort.

Suprapubic enucleation is justifiable in the large bilobar hypertrophies, especially if the patient is comparatively young, and is in good physical condition, for this procedure assures the permanent alleviation of symptoms for recurrences are less than one per cent. Large subcervical hypertrophies should be removed suprapubically. The suprapubic approach is to be preferred in the presence of such coexisting pathology as large calculi and diverticula.

In any condition that requires cystotomy, enucleation is justifiable, with the exception of fibrous bars and small sclerotic prostates, for permanent relief is the rule in contrast to the transurethral procedure where secondary excisions are more frequent.

Carcinoma of the prostate is a common cause of urinary retention. Roughly its occurrence in comparison with benign hypertrophy is in the ratio of one to five. Clinically it is sufficient to remember that carcinoma may originate in any portion of the prostate gland. As in prostatism, urinary retention may be the first symptom of carcinoma, the differentiation usually being made by rectal digital palpation. Hematuria as an associated symptom is approximately ten times more frequent in benign hypertrophy. In doubtful instances and for purposes of definite diagnosis, aspiration biopsy, as described by Ferguson, in the hands of a competent urologist is of definite value.

The initial examination often reveals that the patient is in the later stages of the disease. Local extension to the seminal vesicles and bladder base are common. Metastases to bone, either osteoplastic or osteoclastic in nature, may be extensive. The bony pelvis and spine are most frequently involved. The incidence of extension to the retroperitoneal lymph glands is uniformly high, and visceral metastases are not infrequent.

For alleviation of retention in patients with local extension or metastases, suprapubic cystotomy, in conjunction with the use of the newer technics of high voltage roentgen rays for retardation of the growth and alleviation of pain, is the method of choice. However, if the metastases are extensive or debilitation of the patient is marked, catheterization, providing the urethra can be traversed, and use of the commoner analgesics will fulfill requirements.

The use of transurethral resection for relief of retention due to carcinoma of the prostate has in many instances given gratifying results. It should be remembered, however, that its use in this instance is purely palliative, and that its indiscriminate use can only result in increased morbidity and premature death of the patient.

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[3] Campbell, M. F.: Studies in Bladder Decompression. J. Urol. 17:371-380, March, 1927.

[4] Ferguson, R. S.: Recent Advances in Diagnosis and Management of Genitourinary Tumors. Mississippi Doctor, May, 1935.

The question of so-called five year cures in radical surgery of small carinoma of the prostate has recently been questioned, for it has been pointed out in this type of carcinoma the period of survival may be up to ten years without operation.[4]

The insertion of steel needles containing radon into the prostate through the perineum has its advocates, and in the hands of skilled individuals many cases have been controlled over long periods by this method.

A technic of interstitial radiation[5] of small adenocarcinoma less than four and one-half centimeters in diameter has been developed. This method allows the accurate instrumental placement of gold radon seeds in the prostate through a cystotomy wound, so that a lethal dose of interstitial irradiation is delivered throughout the tumor. This method takes into consideration that the prostate has three dimensions. Its particular application in cases of small carcinoma with retention is self-evident.

There are several dissimilar causes of urinary retention which are not confined to any one age period. We are interested in the neurogenic causes of urinary retention primarily from the standpoint of diagnosis. Tabes dorsalis is a common cause of retention, due to paralysis. From the standpoint of diagnosis we are chiefly interested in its differentiation from prostatism.

General physical examination will discover the most apparent. Neurologic and serologic study of the blood and spinal fluid will serve to rule out most questionable instances. Finally, cystoscopy will settle the question of operation, for in tabetic bladders the internal sphincter will be seen to be dilated. This dilatation allows the external portion of the cystoscope to be deflected upwards, for the dilated internal sphincter no longer acts as a counterbalance to the suspensory ligament.

The cause of retention through cord involvement in diseases, such as poliomyelitis, Landry's paralysis, tumors of the cord, or in compression fractures of the spine, is usually quite obvious. Suffice it to say, they occur. Spina bifida occulta as a cause of retention both in childhood and adult life should be borne in mind.

Treatment of the underlying condition, for example antiluetic treatment in tabes, is always indicated. Care of the retention will be dictated by the individual needs of the patient. In general we may say the dangers of catheterization should be carefully considered from the angle of the individual patient before it is attempted. Suprapubic cystotomy as a life-saving procedure is justifiable in some instances. The establishment of an automatic bladder in complete transverse lesions of the cord should be borne in mind. In a limited number of instances section of the presacral nerve may be indicated but only after examination by competent specialists. The efficacy of urotropin in combating infection in this type of retention should not be forgotten.

Sarcoma of the prostate is admittedly a rare disease. Though not confined to any age period, seventy-five per cent occur before the cancer age, the earliest being reported in a child of four months.[6] Because of the rapidity of growth, urinary retention is frequent.

Another uncommon cause of retention is carcinoma of the urethra. This it does through stricture formation, and for this reason one should always keep in mind carcinoma of the urethra when treating stricture of obscure origin in an individual of the cancer age.

Foreign bodies in the urethra are not usually the cause of retention until infection has made its appearance, which is rather early. Usually the patient complains of some pain and difficulty in urination, but retention is seldom complete. Prior to the onset of infection, the foreign body may be successfully removed by urethral instrumentation. However, the appearance of a few drops of foul smelling bloody pus, together with the verification of the presence of a foreign body, may be sufficient indication for surgery, if abscess formation and coincidental urethral destruction are to be avoided.

Retention may follow the impaction of a stone in the urethra, which most commonly occurs at the external meatus. Usually the pain referable to stone overshadows any discomfort due to retention. Calculus impaction behind a stricture is not infrequent. Ordinarily relief is simple. Meatotomy cures the first, and progressive dilatation will allow the stone, which meanwhile has been returned to the bladder, to pass.

Urethral trauma is comparatively common. Rupture of the urethra may take place in straddle injuries and pelvic fractures. Bleeding per urethra, scrotal and perineal hematoma are usually present. Retention does occur, however, but as most of these

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5. Ferguson, R. S.: Cancer of the Prostate; Clinical Classification and Effect of Treatment by Irradiation. Am. J. Cancer. 16:783-814, July, 1932.

6. Holmes, R. J. and Coplan, M. M.: Sarcoma of Prostatic Area in Infant of 4 Months. J. Urol. 24:539-547, Nov., 1930.

cases are acute emergencies, they are usually operated on before retention is of significance.

The comparatively common entity known as "contracture of the bladder neck," though more common after the fourth decade, may occur at any age period. To aid in differentiation one might add that patients with bladder neck contracture are usually relieved of their retention by passage of a soft rubber catheter, whereas a Philips whip is usually necessary in the passage of a stricture.

Briefly, the causes of urinary retention in children are largely congenital, of which valves, bladder neck contractures, meatal atresias and hypertrophy of the verumontanum are the most common. Acute prostatitis and prostatic abscess as the immediate complications, and stricture of the urethra as a later sequela of neisserian infection are the causative factors in early adult life.

After the fifth decade of life retention is largely due to benign hypertrophy and carcinoma of the prostate. Finally such causes as "cord" bladder, bladder neck contractures, prostatic sarcoma, foreign body in the urethra and urethral trauma are found at any age.

You may well doubt that any advantage is to be gained from grouping the causes of retention, when obviously many causes do not confine themselves to any age period. That there are many exceptions to this classification we are well aware, for autopsy in the case of an adult male seventy-five years of age, dead of advanced renal destruction, revealed the primary cause as due to congenital valvular obstruction.[7] Similarly, the same author has reported an instance of prostatic abscess due to neisserian infection in an infant twenty-eight months old.[8] However, the comparative infrequency of these exceptions, the rarity of such examples as sarcoma of the prostate, and the ease with which many of the commoner causes of retention can be detected justify such classification. Simplification is absolutely essential, for as the physician has organized his knowledge, so will the patient benefit.

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[7] Campbell, M. F.: Vesical Neck Obstruction in Infants and Children (not yet in print).

[8] Campbell, M. F.: Gonococcal Prostatic Abscess in Infancy. J. Urol. 22:445-447, Oct., 1929.

HEMATURIA*

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Hematuria as the title of any paper, however short, is something of an oddity, since it is definitely not a disease but a symptom. It is really the idea of again calling attention to this fact that leads me to present this brief paper.

Mackenzie, analysing thirty-eight hundred patients with urogenital diseases, found that twenty-one and six-tenths per cent had hematuria. Hermon of Philadelphia found in one hundred and fifty cases of surgical disease of the kidney, hematuria in forty-three and three-tenths per cent. On the other hand, only three and nine-tenths per cent of the general admissions to the Pennsylvania Hospital gave a history of hematuria. So, it is a comparatively rare symptom in general practice but a prominent and frequent one in urologic practice.

Hinman's latest text says: "Blood in the urine can come from a large variety of causes and usually means some serious disease or lesion. It always should be investigated promptly. It is rarely constant, but usually intermittent in character. Months or years may intervene between attacks. It is decidedly not a clinical entity for mere symptomatic treatment, but an indication for thorough investigation. Cessation of the bleeding is no indication of cure, nor excuse for delay of the investigation." Hugh Young says: "Unfortunately, physicians sometimes treat hematuria expectantly. This should never be done, as in a great majority of cases, blood in the urine indicates a serious disease."

The causes of hematuria may be roughly classified as general and local, with the local causes occupying by far the most important position.

1. General Causes—Extraurinary.
    A. Blood dyscrasias.
        1. Hemophilia, erythremia, purpura, etc.
    B. Infections.
        1. Infectious fevers.
        2. Adjacent local infections.
            Appendicitis, pelvis abscess, perinephritis.
    C. Medicinal or toxic.
        Cantharides, turpentine, urotropine, etc.
    D. Nervous.
        Tabes, vicarious menstruation, hysteria.
2. Local or urogenital causes.
    Of these the most important are, of course:
        1. Stone
        2. Tumor
        3. Tuberculosis.
    Infections other than tuberculosis are next in importance.
        4. Nontuberculous infections.

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* Read before a meeting of Yakima County Medical Society, Yakima, Wash., December 9, 1935.

All of these may be either of the kidney or bladder or urethra or any two or all three together, or of the prostate in the male.

5. Glomerulonephritis.
6. Traumatism and foreign bodies.
7. Essential hematuria.

In a necessarily brief discussion of this classification I can only select a few of the topics for remark, with perhaps an occasional interesting side light. So I pass the blood dyscrasias and the infections, except appendicitis. It is not uncommon for acute appendicitis to be accompanied by some degree of microscopic hematuria. Besides erudition and a good working knowledge of urology, a certain measure of horse sense is of value in appraising such a situation.

Some years ago I was called to an Army Post to see, in consultation, a young soldier who was supposed to have calculous anuria. Pain in the right flank and loin, fever, and a very scanty pathologic urine led to this conclusion. I catheterized the patient and obtained a few cubic centimeters of urine with blood, some pus and casts. Nevertheless, my diagnosis was ruptured appendicitis with peritonitis. The surgeon was urged to open the belly at once which he did, while I stood by, releasing an abdomen full of pus. The hematuria, etc. were due to an intense toxic nephritis. The man died in two days.

On the other hand, I have dilated a number of ureteral strictures for pain which was supposed to have been removed by previous appendectomy.

Medicinal hermaturia I shall pass by. Urotropine has at times cause it, but I have not in my own work seen a case.

Under nervous causes, hysteria or malingering occasionally are responsible for interesting and baffling bleeding.

Ten or twelve years ago I saw a woman who had had one kidney removed for hematuria and who was still bleeding intermittently and rather profusely. Cystoscopy and a study of the remaining kidney revealed no obvious cause, and it was not until I recognized a recurrent skin eruption which had long baffled her doctor as a dermatitis factitia that I was enabled, in retrospect, to evaluate the tiny red areas in her bladder I had seen on cystoscopy. She produced her hematuria by pricking her bladder with some long sharp instrument, probably a hat pin. Needless to say, I was fired as soon as I made the diagnosis, but the hematuria did not recur.

Drug addicts occasionally fake a hematuria to lend an air of verisimilitude to their complaint of excruciating renal colic. Mercurochrome, eosin or a couple of drops of blood from a tiny stab in the finger may convince the unwary doctor.

Now we come to the local or urogenital causes, in which the urologist is principally interested. Stone is the popular explanation of all hematuria, even, I regret to say, among the profession at large. Yet it causes less than half of all bleeding, twenty-three and three-tenths per cent in Mackenzies' series of eight hundred and twenty-one lesions of the urinary tract with hematuria.

Here is a recent picture of a nice collection of stones which were causing mild to moderate hematuria, (roentgenogram shown with many small stones in each kidney), this in a woman of fifty-two. Yet within a couple of weeks I saw a much more severe hematuria in a woman of forty-four from an infection of the bladder only. And some stones cause no hematuria.

Also, it is important to remember, studying a patient for the cause of hematuria and failing to find a stone, that not all stones, and especially ureteral stones, will show in roentgenogram. Hinman says that failure to visualize occurs in from ten to fifteen per cent. Hugh Young, in a much larger series, gives the figure of sixteen and three-tenths per cent. Usually, in such a case, with carefully made pyelograms a filling defect will expose the culprit, or a wax-tipped catheter will show characteristic scratches. But I have had the humiliating experience of missing such a stone entirely, and I expect it to happen to me again.

Hematuria is occasionally a prominent symptom in bladder stone. Mr. J. C., age fifty-nine, referred by J. H. Carver for severe hematuria beginning the night before, gave a history of a similar short attack six weeks previously and there was no other urologic history. Yet the cause proved to be a bladder stone five centimeters long by four centimeters wide by two and one-half centimeters thick.

Tumor is probably the urologist's first thought when presented with hematuria, and that probably because he fears it most. I give you a classic example.

Mr. H. E. S., age forty-four, had a left renal colic and marked hematuria in June, 1928. The bleeding stopped before he could be gotten in for study, which was nevertheless done without revealing any satisfactory explanation of the hematuria. In November of the same year, after three brief spells of bleeding, he reported for another examination, at which time, from the pyelogram, I diagnosed left renal tumor.

He again disappeared until February, 1929, when he sustained a straddle injury, involving a fracture of the descending ramus of the ischium and a moderate laceration of the urethra with hematuria. This healed without interference and he was again lost sight of until January, 1931, when he came in complaining of pain in the region of the left kidney. He had bled only once in the interim and that over a year ago.

I removed the kidney February 3, 1931. The pathologist's diagnosis was carcinoma. The last I heard of the patient, in August of 1932, was that he had a recurrence and was failing rather rapidly and was still trying to convince the Department of Labor and Industries that the straddle injury was the cause of the cancer.

Occasionally an individual with such a lesion is fortunate enough to bleed severely and continuously early in the development of his tumor, and before the diagnosis is so thoroughly apparent. I had the privilege of seeing such a case recently in consultation with F. H. Brush. I seconded, as strongly as I could, his very excellent advice to remove the kidney at once, and shortly thereafter he took it out. It contained a carcinoma about three-tenths of a centimeter in diameter, which did not, of course, show in the pyelogram.

Bladder tumors also bleed, early and intermittently. I give you a classic example.

A fifty-five year old man, referred by C. R. Duncan for hematuria of one week's duration, with a history of a short spell of hematuria one year ago and again six months ago. Cystoscopy revealed a cauliflower-like growth near the right ureteral orifice, approximately two and one-half centimeters in diameter by one and one-half centimeters thick. The diagnosis from a biopsy specimen was papillary epithelioma, squamous cell type.

The growth was destroyed by fulguration in two sittings and without opening the bladder. This was in January of this year. There was no evidence of recurrence at the last cystoscopy in June.

Enlargement of the prostate comes, of course, under the heading of tumor. Parenthetically, the profession would do well, in speaking to the laity, to use the term "tumor in the prostate" instead of the universally used term "enlargement of the prostate," since the latter is incorrect and leads directly to the use of the term "removal of the prostate," a term which strikes fear to the heart of any man and which procedure is never done. The surgeon enucleates the tumor from the prostate, leaving a considerable amount of compressed prostatic tissue behind. I have found that an explanation of this fact brings considerable solace to candidates for prostatic surgery. Hematuria is occasionally the presenting symptom of a tumor of the prostate. It seems not to be generally known that the benign adenoma is much more prone to bleed than the malignant carcinoma.

Tuberculosis. In Mackenzie's previously quoted series of eight hundred and twenty-one surgical lesions of the upper tract with hematuria, ten and seven-tenths per cent were tuberculous. Or, to look at the problem in another way, of Hugh Young's collection of cases of urogenital tuberculosis, fifty-one and seven-tenths per cent had hematuria as one of the symptoms, and in nine and three-tenths per cent it was the first symptom. It may not only remain the only symptom for some time, but also the only finding, in which case, of course, the establishment of an accurate diagnosis may be extremely difficult or impossible.

Such a situation is well illustrated by this double kidney (specimen shown), which bled profusely but intermittently over a period of nine months. There must, you would think, have been tubercle bacilli in the urine, but we could not find them, nor could we get a satisfactorily diagnostic pyelogram. In this period of nine months, I was obliged to transfuse the patient four times because of his marked loss of blood. I was finally forced to a nephrectomy. The patient died and the other kidney was found to be tuberculous also.

In nonspecific infections of the urogenital tract hematuria may occasionally be a prominent symptom.

Mrs. C. H. M., age sixty, was referred by J. P. Loudon for a hematuria of three days duration. There was a vague history of some bladder trouble twenty years previously, with no urologic symptoms since. There was, however, a long list of other troubles, with not much relief from many precedures, including surgery.

A study revealed the right kidney to be the source of the bleeding, and the pyelogram on this side revealed a slight excavation in one of the lower calyces. Cultures were negative, and naturally tuberculosis was suspected. The bleeding persisted and rather forced my hand, as I felt that we did not have an accurate diagnosis.

However, I transfused her and then removed the right kidney. A small pitted ulcer was found in the mucosa in one of the lower calyces and, after studying the sections of the ulcer, R. W. Shirey diagnosed it a focal necrosis, due undoubtedly to some nonspecific infection. It is interesting to note that when last seen the patient declared herself to be relieved of a number of her other complaints.

Another example is the patient I referred to a few moments ago who had a profuse hematuria from an acute cystitis due to the colon bacillus. However, such a situation is, I can earnestly assure you, rare, since cystitis is usually due to an infection higher up, is seldom found with hematuria as a prominent symptom and is rarely seen with it as the presenting symptom.

Acute posterior gonorrheal urethritis and prostatitis is frequently accompanied with some hematuria. Here, again, horse sense is valuable. Surely no one would consider cystoscopy under such circumstances, and yet it has been done.

Chronic infections of the posterior urethra, with inflammatory papillomata, sometimes give rise to troublesome hematuria. The unwary urologist may cystoscope the patient and make a complete renal study without locating the cause of the bleeding, because he has gone past it. I know a prominent urologist who once opened a bladder suprapubically three times to turn out masses of clot, and without locating the bleeding point. He finally urethroscoped his patient and found a small papilloma in the posterior urethra that was doing the bleeding. A touch of the fulgurating current and his troubles were over. One of my teachers once got off the Irishism that a urologic examination was not complete unless it was complete, meaning, of course, that if the urethra is not examined something may be missed. I have never forgotten his very excellent advice.

Glomerulonephritis may give rise to hematuria. It is really the internist's problem and I shall not dwell upon it.

Traumatism or foreign bodies may produce hematuria. I gave you an illustration of traumatism in considering hysteria. In the graver degrees of trauma bleeding is, of course, an important symptom, but others are probably more important and the subject is deserving of a paper all by itself.

Foreign bodies may migrate into the urinary tract from elsewhere in the body, and under this heading might be mentioned bone spicules, unabsorbed sutures and various gadgets left behind by the surgeon, which may all give rise to hematuria. An interesting group of foreign bodies are those introduced by the patient.

I list a few from Dakins' interesting collection of "Believe It or Nots in Urology." A broom straw, a two and one-half inch piece of lead, a douche nozzle six inches long and one-half inch in diameter which the lady insisted that she had swallowed, a button three-quarters of an inch in diameter and apparently from a nurse's uniform, a fountain pen, a tooth brush handle, a pencil, a small glass bottle, two medicine droppers, a phial of perfume; well, perhaps that is enough. My own contribution is this parrafin which, in the form of a cylinder, the lady said she used to dilate a stricture (parrafin shown, total bulk about ten cubic centimeters).

Finally, I have listed essential hematuria, but this is probably not a real entity, the more obscure cases probably being variously due to glomerulonephritis, arteriosclerotic nephritis, chronic passive congestion of the kidney, varices of the renal papillae, lead poisoning, renal infarction and embolism, and causes outside the urinary tract.

While I have touched only the high spots in this brief presentation, I trust that I have again brought to your attention the fact that a consideration of hematuria covers the whole field of urology, that it is not a diagnosis per se, that it demands and should receive prompt and thorough investigation, and that it usually means some serious disease of the urinary organs.

CARCINOID AND CARCINOMA OF THE APPENDIX*

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The subject of carcinoid and carcinoma of the appendix is worthy of discussion, because there is still some confusion in regard to the differentiation of these two entirely distinct neoplasms. The former is benign and the other malignant. The one is at times mistaken for the other and vice versa. These may be confused grossly or microscopically. Three cases are herein reported, two of primary carcinoma, and one of carcinoid of the appendix.

Carcinoids of the appendix are not uncommon. Carcinomata are less frequent. There are reports of over 360 cases of the latter in the literature, which probably represents only a fraction of those actually occurring. Vance[1], in reviewing the literature, found that carcinomas occurred in 0.2 to 0.5 per cent of all surgical appendices. They comprise less than 0.5 per cent, however, of all intestinal carcinomata. The incidence of carcinoma of the appendix varies with the different series studied. Selinger[2] reports an incidence of 0.35 per cent of appendices examined at the postgraduate hospital. Reimann[3] reports an incidence of 0.13 per cent of carcinomata. Moerl[4] has reported an incidence of 0.28 per cent of carcinoids of the appendix. The incidence at St. Vincent's Hospital in the last six years, in 3,420 cases, is 0.32 per cent carcinoids and 0.058 per cent of carcinomata of the appendix.

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* From the surgical and pathologic service of St. Vincent's Hospital. We wish to thank Dr. L. P. Gambee for permission to include case 3 in this report.

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A carcinoma of the appendix was first reported in 1838 by Merling[5]. In 1882 Beger[6] described the first proved case of primary carcinoma of the appendix.

Carcinoid tumors were first identified in 1907 by Oberdorfer[7]. Although resembling cancer in appearance, they clinically represent and behave like benign growths and do not recur, metastasize distantly or form destructive growths. There is no case on record, as far as we know, wherein either carcinoid or carcinoma of the appendix has been diagnosed preoperatively. Many of the cases have a clinical history and course of an acute appendicitis and are discovered accidentally at operation, as was true in the first two cases herein reported.

A carcinoid tumor is composed of small, well differentiated polygonal or spheroidal cells in alveolar groups or strands and is not malignant.

There are two separate theories of the source of carcinoid of the appendix. Aschoff[8] thought them to be a nevus of the mucous membrane. Gosset and Masson[9] considered these tumors to be of neurogenic origin and arising from chromaffin cells, which seemed to be connected with Meissner's plexus. Danish[10], Hasegown[11], and Forbes[12] confirmed the work of Masson. It is now conceded that this latter view is correct and that the condition is a hyperplasia of the argentaffine cells which are normally present in this area.

CASE REPORTS

Case 1, R.L., 32 year old white male, complained of abdominal pain which occurred five hours before the examination. The pain had gradually become severe and centered in the right lower quadrant. He took a cathartic and this seemed to aggravate the pain. He did not vomit, neither was he nauseated, nor did he entirely lose his appetite. The bowels had moved that day. He had previously experienced neither abdominal pain nor symptoms referable to any of the other symptoms.

The only positive findings in the physical examination were marked right lower quadrant spasm and very acute localized tenderness over McBurney's area. The temperature and pulse were normal.

The white blood count was 13,200 with 86 per cent polymorphonuclears, 4 large mononuclears and 10 lymphocytes. The urine was negative. The preoperative diagnosis was acute appendicitis.

A right pararectus incision was made under ethylene-ether anesthesia and a greatly enlarged appendix with a bulbous or clubbed tipped with fresh fibrin on it was removed. The postoperative course was entirely uneventful.

The pathologic examination was as follows:

Gross Examination: The appendix measures 6.0 by 0.8 cm. and presents a wet, hyperemic serosa partially roughened by fibrin. The wall has been incised proximally. It is edematous. The lumen contains purulent fluid. The mucosa is pale, but swollen.

Microscopic Examination: The wall of the appendix is diffusely infiltrated by polymorphonuclear neutrophiles with patchy liquefaction necrosis that is not pronounced. In addition, edema and hyperemia are noted. Parts of the serosa are thickened by fully developed connective tissue as is the submucosa. Most of the mucosa is complete without necrosis or ulceration. In one section there is an area in the submucosa having the diameter of about one low power field, where moderately collagen-containing connective tissue with plump nuclei includes small groups of epithelial-like cells. These occur in single rows, in very small alveolar groups and in narrow branching strands. Their nuclei are spherical, of uniform size and show a finely granular chromatin with coarser clumps (fig. 1). Although many sections are taken no other such areas are seen.

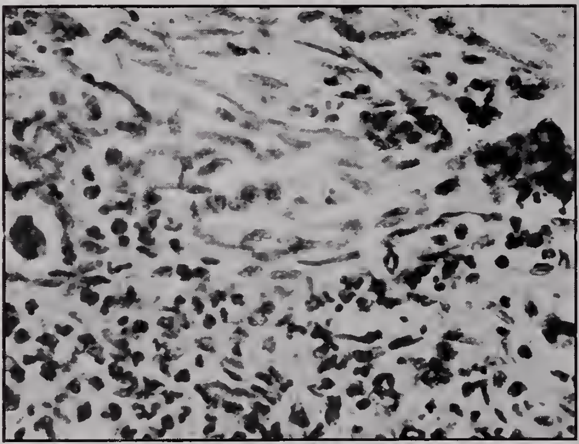

Fig. 1. Carcinoid area of Case 1, showing alveolar grouping of argentaffine cells in actively proliferating connective tissue.

Pathologic Diagnosis: Acute diffuse suppurative and purulent appendicitis, chronic appendicitis, early carcinoid of the appendix.

Case 2. Mr. L.G.S., sixty years old, white, single. Complained of right lower quadrant pain for three days. He had never had any similar pain, nor had he suffered from indigestion. The pain increased gradually in severity, but had not been sufficient to cause him to stop working. There had been no vomiting, nausea or loss of appetite. The bowels had become suddenly constipated which was unusual.

The patient has had a bilateral inguinal hernia for years and wears a truss. No symptoms were referable to other systems and no past or family history of importance was noted.

The examination revealed tenderness with marked spasm localized over McBurney's area. A bilateral inguinal hernia, indirect and incomplete was present. The temperature and pulse were normal.

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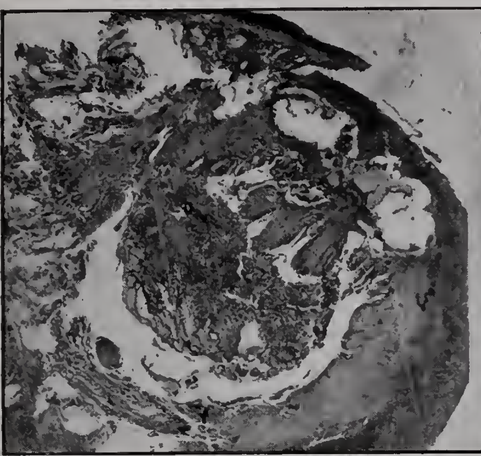

Fig. 2. Case 2. Low power showing pools of mucoid carcinoma far into the wall, reaching the serous surface. Note papillary processes extending into lumen.

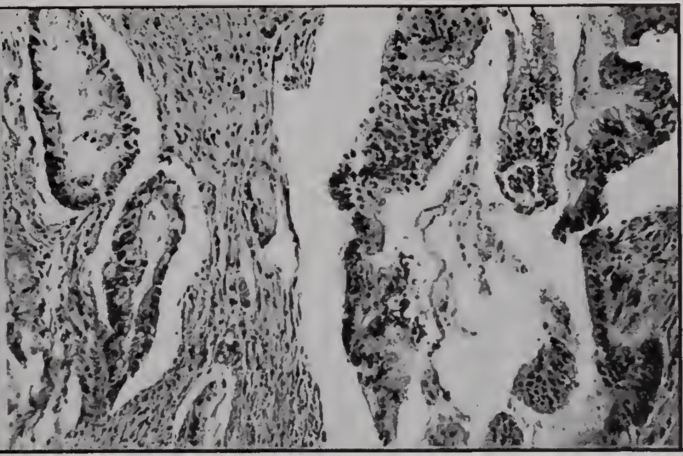

Fig. 3. Case 2. High power illustrating invading mucoid adenocarcinoma.

The white blood count was 10,600 with a normal differential count.

The preoperative diagnosis was subacute appendicitis.

At operation through a pararectus incision, under ethylene-ether anesthesia, a large subacutely inflamed appendix was found which was bulbous at its tip and adherent to the omentum. The appendix was removed and, not knowing its malignant nature at that time, the contiguous omentum was not removed. Convalescence was uneventful.

The following is the pathologic report:

Three weeks later the abdomen was reopened to remove the area of omeentum which was contiguous to the adherent appendix tip. No area of gross malignancy was found, but the area of omentum was removed. No evidence of carcinoma was found microscpically.

Gross Examination: The appendix is a large structure, 6.0 cm. in length, with a wet, finely hyperemic serosa, but no apparent perforation. The diameter at the proximal end is 1.0 cm., but is enlarged to 1.5 cm. distally. Here the wall has a grey, thick, wet appearance and the mucosa is red and swollen. The lumen contains a clear mucoid substance and minute clear gelatinous areas are noted in the wall. At one point the wall is very thin and the lumen is herniated outward. Near the distal end the lumen is filled by pale, somewhat bluntly papillary structures. Elsewhere the mucosa is pale and somewhat thickened.

Microscopic Examination: Sections from the distal end of the appendix show atypical glands of various sizes and shapes, invading the wall where they reach the very serosa and extend into the surrounding fat included. The lumen is practically filled by these glands and the supportive stroma. These invading glands are lined by a single layer of columnar epithelial cells which have hyperchromatic nuclei. The majority have a pink-staining cytoplasm, but many show the presence of mucoid globules. Many of these glandular spaces are distended with mucus and such glands show varying grades of pressure atrophy of the lining epithelial cells, with interstitial dispersion of mucus and epithelial cells. Mitotic figures are sparse. The wall of the entire appendix is infiltrated by an admixture of plasma cells, polymorphonuclear neutrophiles, eosinophiles and lymphocytes with fibroblasts present. There are patchy areas of interstitial hemorrhage and quite a few blood pigment laden phagocytes are seen in such areas (fig. 2, 3).

Pathologic Diagnosis: Primary adenocarcinoma of the distal end of the appendix with mucoid degeneration; subacute appendicitis. The carcinoma has extended to the very serosal surface and has probably extended into any adjacent structures that were adherent to the distal tip of the appendix.

Case 3. Mrs. C. W. S., patient of Dr. L. P. Gambee, age 38 entered St. Vincent's Hospital Dec. 31, 1934. The chief complaint was pain in the abdomen.

For the past eleven years the patient had experienced occasional pains in the left lower quadrant. These were sharp and stabbing in nature and lasted only a short time. On about Dec. 18 the patient experienced a very sudden attack of acute pain in the center of her abdomen. Since that time she has noticed several similar attacks and now the pain is localized in the left lower quadrant. The pain is increased by bowel movements and any gaseous distention, but not influenced by food or urination.

Examination of the abdomen yielded some increased resistance in the right adnexal region with slight tenderness. Quite marked spasm over the left side on pressure with marked tenderness was found.

On Dec. 22, 1934 pelvic examination disclosed a mass in the region of the right adnexa. This was very tender.

Jan. 2, 1935, pelvic examination under anaesthesia divulged a lemon-sized tumor on the right side. This was movable and evidently not tightly fixed to the uterus.

Hemoglobin was 70 per cent (9.66 grams), red blood cell count 4.080,000; white blood cell count varied from 14,800 to 15,150 with polymorphonuclear neutrophiles varying from 79 to 82 per cent with no increase in the staff cells.

The patient was operated on Jan. 5, 1935, with the preoperative diagnosis of pelvic tumor. A large quantity of mucinous material was encountered. The intestines were violently inflamed, edematous and covered with exudate. The adhesions were relatively few and friable. The appendix appeared to be attached to the remains of a cyst in the region of the right ovary. Study of the specimen showed this to be a ruptured carcinomatous mucocoele of the appendix. The appendix and a fibroid were removed.

The pathology was as follows:

Gross Examination: The appendix has a length of 5.0 cm. The proximal 2.0 cm. has a diameter of 1.0 cm. and a rough, bloody, ragged fibrous appearing serosa. The distal part of the appendix shows bulbous enlargment to a diameter of 2.5 cm. and the external surface is similar. Here there is an opening in the wall, measuring 1.3 cm. in diameter with the wall everted about this opening. The wall has a thickness of 0.3 cm., contracted to a thickness of 0.5 cm. proximally. All coats can be made out in the entire length of the appendix. The lumen of the dilated part contains a small amount of clear, semigelatinous material that is straw-colored (fig. 4).

There is also a rather firm structure measuring 5.5 by 1.5 by 2.0 cm. This is somewhat curved, with the concave edge appearing as a linear fibrous zone bordering somewhat opaque yellowish-grey, glistening, firm gelatin-like material.

Included separately are 150.0 grams of clear, straw-colored, soft gelatinous, somewhat sticky material with occasional grey, opaque areas of firm consistency.

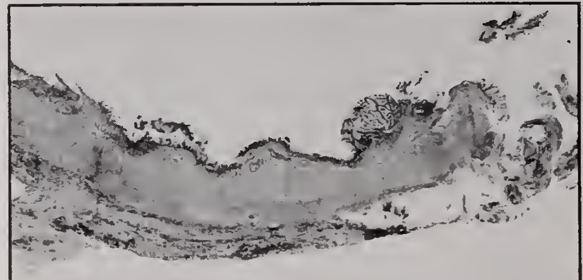

Fig. 4

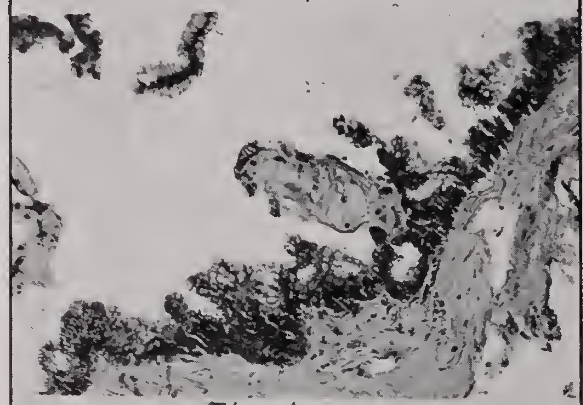

Fig 5

Fig. 4. Case 3. Low power showing longitudinal section through ruptured distal end of mucoid carcinomatous mucocoele. Note invasion of ruptured distal end.

Fig. 5. Case 3. High power showing gelatinous appearing area found free in abdomen. Note mucoid pools and cellular adenocarcinomatous areas of low grade malignancy.

Microscopic Examination: Microsections from the dilated portion of the appendix show the muscularis to be essentially unchanged. The serosa shows thickening by vascular connective tissue infiltrated by numerous lymphocytes. In part of this thickened serosa there are widened, interstitial spaces containing a fibrillar mucoid substance but no epithelial cells. This has the appearance of a mucoid carcinoma with complete degeneration. The mucosa of this part of the appendix lacks the normal cryptic appearance and instead contains a lining of columnar epithelial cells with all of these cells tall and showing mucoid distention of the cytoplasm. These epithelial cells rest upon a basement membrane and numerous small and longer papillary structures are present. These papillary structures have a delicate thin fibrous core, carrying a capillary blood vessel. Some of these epithelial cells in the deeper portion show less mucus in the cytoplasm. Only an occasional mitotic figure is encountered after prolonged search.

A section from the smaller part of the appendix shows a cryptic mucosa which is essentially unchanged. The rest of the wall exhibits chronic inflammation.

Sections from the separate semitransparent pieces of tissue show narrow strands of dense collagen-containing connective tissue separated by spaces containing fibrillar mucoid substance. There are occasional clusters of epithelial cells which surround rather large glandular spaces. These epithelial cells are identical to those lining the mucosa of the dilated distal part of the appendix. Papillary formation is noted and mitotic figures are very scarce. In these areas, where epithelial cells are found, the stroma is compact and contains an abundance of collagen with a few lymphocytes, monocytes and plasma cells present. There are also areas of active connective tissue proliferation, where fibroblasts are found mixed with lymphocytes and plasma cells. Here there are young capillary blood vessels. One such area contains a few columnar epithelial cells surrounding a small acinar space. This is the characteristic appearance of an organizing process resulting from implantation metastasis of carcinoma cells (fig. 5).

The myofibroma is typical.

Pathologic diagnosis: Primary colloid carcinoma of the appendix with mucocele formation; rupture of appendiceal mucocele with dissemination of colloid carcinoma into peritoneal cavity; myofibroma of corpus uteri; subacute peritonitis (carcinomatous).

The postoperative course was noneventful. No evidence of recurrence was found by abdominal or pelvic examination Nov. 2, 1935.

The importance of recognizing the true carcinoma from carcinoid at operation is evident as illustrated by the first two cases. If it is carcinomatous, contiguous omentum or abdominal wall should be removed to prevent implantation metastasis. The two first cases herein reported appeared to be alike in the gross, before pathologic examination of the appendix. Both were definitely clubbed or bulbous on the end. The case of true cancer had a gelatinous or mucoid substance in its tissue.

The lesson to be drawn from these first two cases is that externally an early carcinoma and carcinoid of the appendix may appear alike, and careful examination of the specimen should be done at the operating table of any suspicious bulbous tipped appendix, so that adherent omentum or abdominal wall may be removed at the original operation. The presence of clear gelatinous areas in the wall or on the surface should lead one to suspect mucoid adenocarcinoma.

SUMMARY

1. A case of early carcinoid of the appendix is reported. A carcinoid is composed of small polygonal or spheroidal cells arranged in strands or alveolar groups and showing few if any mitotic figures. A carcinoid is entirely benign. They are relatively common.

2. A case of early carcinoma and one of ruptured carcinomatous mucocele of the appendix are reported. Both are true adenocarcinoma with mucoid degeneration.

3. The carcinoid and one case of carcinoma appeared similar in the gross.

4. This subject is discussed and cases are reported to emphasize that these two conditions are distinct entities and yet similar enough to be confusing, unless both are kept in mind.

Nervous Complications Following Spinal Anesthesia: Clinical Study of Seven Cases, With Tissue Study in One Instance. Samuel Brock, Aaron Bell and Charles Davison, New York, (Journal A.M.A., Feb. 8, 1936), report seven instances of neural complications following spinal anesthesia, with tissue changes in the spinal cord in one case. In all but one of the cases the cocaine derivative used was known; two received a preparation of procaine with strychnine sulfate, three nupercaine and one procaine hydrochloride. The site of injection was the lumbar subarachnoid space between the second and third lumbar vertebrae or lower, except in one instance in which the injection was made between the first and second lumbar vertebrae. There were two instances of aseptic meningitis, one of polioencephalitis, one of lumbar radiculitis, two of cauda equina neuritis and "myelitis," and one of transverse "myelitis." The time elapsing between the spinal anesthesia and the appearance of the neural complications varied from almost immediate onset to an interval of three weeks. Clinically, the two cases of aseptic meningitis ran a rapid and benign course ending in complete recovery. One instance of cauda equina neuritis and "myelitis" and the other of transverse "myelitis" ended fatally from complications directly attributable to the neural disease, twenty-nine months and three months after the onset, respectively. The clinical course in the first case was characterized by long periods during which the condition was stationary; these periods were followed by spread of the process to higher levels of the cord. The most pain occurred in the patient with the lumbar radiculitis, showing slight residual signs sixteen months after the onset. One of the patients with cauda equina neuritis and "myelitis" regained the ability to take a few steps five months after the onset, but the sphincters and sensory and reflex status remained unchanged. In the instance of polioencephalitis, life was despaired of early in the illness, yet the patient recovered but still had residual signs nineteen months after the onset. The spinal fluid showed no characteristic picture. In all of the cases but one (lumbar radiculitis) the neural syndromes so speedily followed the administration of the spinal anesthesia as to suggest immediately a direct chemotoxic effect of the cocaine derivatives on the neuraxis. However, the direct chemotoxic effect does not entirely explain the causation of the neural complications. There is the undeniable fact that the great majority of patients operated on under spinal anesthesia do not develop complications of the central nervous system. Furthermore, instances like the case of lumbar radiculitis in which the interval between the anesthesia and the onset of symptoms is relatively long, and in the case in which cauda equina neuritis and mild cord involvement continued over a period of months, terminating in a fatal transverse "myelitis," suggest the possible intervention of other factors. To account for the thesia, one has to assume the existence of tissue sensitivity to the cocaine relative infrequency of neurologic complications following spinal anesderivatives. A consideration of the difference in the cellular reactions of the spinal fluid in the two instances of meningitis adds weight to the belief that factors other than chemotoxic participate. In this connection the very close resemblance of the case of lymphocytic meningitis to the cases described by Abramson is of special interest, since his review of the evidence concerning the etiology is very much in favor of a virus. The tissue changes in the spinal cord in the case of transverse myelitis are those of a toxic myelopathy exactly similar to the few cases already mentioned in the literature. Spinal anesthesia has been successfully used in so many diverse conditions that the associated sugical diseasees can have no causative relationship to the nervous complications. Allergic factors are not involved in these cases, since one is not dealing with protein sensitization. At the present time there is no way of determining whether or not a patient's nervous tissues are oversensitive to the cocaine group of anesthetics. Nor is there anything but an unsatisfactory symptomatic therapy available, once nervous complications arise. For these reasons it is strongly urged that spinal anesthesia be restricted to a special group of individuals unable to withstand the risk of a general anesthetic.

Torulosis. In clinical manifestations of Torula, Louis A. Mitchell, Newark, Ohio (Journal A.M.A., Feb. 8, 1936), is of the opinion that the portal of entry to the body is probably the respiratory tract, but the evidence at hand is not conclusive. The open pharynx has been most often suspected, and the possibility of the organism entering the body through the tonsils, the accessory nasal sinuses and the middle ear has been mentioned. The central nervous system may be invaded without evidence of infection elsewhere in the body. The organism has been thought by some observers to invade the body by way of the gastrointestinal tract. Large lymphatic tumors are often produced by invasion of the lymph nodes, and it is probable that the lymphatic system offers the most active defense against a generalized spread of the infection. The onset of the disease may be insidious, with a marked delay in the appearance of symptoms. A generalized visceral involvement is relatively rare and when it does occur the clinical symptoms change with the variation in location and extent of the lesions. Torula rarely produces superficial lesions and does not characteristically invade the skin. Many cases of Torula have exhibited the clinical symptoms of Hodgkin's disease. Mallory has observed five such cases. Infection of the central nervous system is evidenced by earache, stiff neck, visual disturbances, vomiting, ataxia, paralysis, convulsions, loss of memory, and disturbances of sleep. Torulosis may be mistaken for other diseases of the central nervous system, notably tuberculous meningitis and brain tumor. However, the organisms are usually found in large numbers in the spinal fluid and this makes the diagnosis clear. Marked emaciation usually accompanies the infection wherever it is located. There is usually some elevation of temperature. The leukocyte count varies from moderate leukopenia with a normal differential count to a marked elevation of the total leukocytes. The disease may run its course in a few weeks or months, or it may persist for years. The infection is of low pathogenicity until the central nervous system is invaded. Once this has occurred, the clinical course of the disease is steadily downward with the possibility of only incomplete and temporary remissions. No treatment so far reported has had any effect on the course of the disease.

Heart Block and Pregnancy. Experience with his case of heart block and pregnancy, in addition to the six similar cases reported by others, suggests to Mitchell Bernstein, Philadelphia (Journal A.M.A., Feb. 15, 1936), that the gestation should not be interrupted if cardiac compensation maintains. Patients with heart block and pregnancy should be observed frequently. Electrocardiographic studies are advisable. Sufficient rest should be obtained by the patient, thus avoiding overexertion and cardiac decompensations. Prolonged labor should not be permitted, and delivery should be by cesarean section or by the use of forceps. Local or spinal anesthesia should be used. There is no escape from the fact that pregnancy should be terminated if heart failure occurs in a gravidocardiac patient including heart block. In the case recorded there were no signs of decompensation during the period of gestation. Hence the patient was permitted to go to full term. The result justified the conservative measures. The etiology of the heart block in the case reported is probably due to syphilis. Blood Wassermann tests were repeatedly plus four, while the history of the case failed to tell of any of the other causes of heart block. Antisyphilitic treatment was instituted when the patient first came under observation in November 1931, and was continuous through the gestation in 1933. The complete heart block was changed to delayed auriculoventricular conduction time of 0.4 second, Aug. 5, 1933, immediately following delivery. This persisted at least until August 9, as evidenced by the electrocardiograms. Later electrocardiographic studies showed a reversion to complete heart block.

NORTHWEST MEDICINE
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EDITORIAL

THE AMERICAN FOUNDATION

Many of our readers who have been in practice twenty years or more have received communications from The American Foundation Studies in Government, requesting their opinions on certain phases of medical practice. The officials of this organization apparently realize the fact that many statements have been issued bearing on the cost of medical practice and suggestions for its alteration in certain ways which have emanated from nonmedical sources. It seems that this is an effort to obtain the views of practitioners of years of experience, to which hitherto due consideration has not been given. At the outset it is emphasized that no preconceived objective is entertained concerning changing existing forms of practice or favoring any of the much publicized systems of state medicine, group insurance, etc. It is asserted that the first step is to summarize the views of experienced men in the medical profession which may likely be a source of illumination on this question which has become unprofitably controversial. It is requested that the recipients of this communication freely express themselves whether they feel any essential change is needed in the present requirements of medical service and if so, in what directions it should be directed, the well known plans being enumerated which have received much publicity.

If the expression and thought of medical leaders throughout the country may be obtained, it is believed that some solution may be reached bearing on the present problems of medical progress and medical care. The belief is asserted that the Foundation's study of public health is part of a comprehensive study of government in various fields, and the objective is to investigate the degree to which government may wisely serve its citizens. A subsequent letter from the Foundation states that a significant number of frank replies have been received from leaders in medical science in various parts of the country, including physicians engaged in rural, urban, factory, hospital, group, clinical, institutional, general practice and various special fields. It is asserted that already the results of the inquiry will furnish a more comprehensive analysis of the situation than has hitherto been available.

In an effort to afford inquirers information as to the purpose of this investigation, R. G. Leland, Director of Bureau of Medical Economics of the American Medical Association, has reported the result of his personal investigations. He found the existence of much anxiety over the activities of the group of men in Washington who are attempting to change completely the existing social order and the possibility of extending these reforms into the field of medicine. He was assured that the present undertaking of the American Foundation is a bona fide effort to study certain phases of medical economics by a method not previously employed. It is especially desired to obtain the attitude and opinions of physicians of experience in medical practice and the manner in which this is meeting its obligations. He was assured that the Foundation seeks to keep close contact with American Medical Association and welcomes suggestions, criticisms or suggestions in this study. Dr. Leland emphasizes that his effort has been to present its purposes as presented by its officials, concerning which he offers no personal opinions. This summary is presented relative to The American Foundation Studies in Government in order that those approached on the subject may possess available information as to its aims and purposes. If thereby more light can be revealed bearing on the true status of this much discussed problem of medical care, these efforts will be truly worthwhile and will be of real benefit to the general population and the medical profession.

RESULTS OF SOCIALIZED MEDICINE

The numerous books and papers which have been published in recent years advocating the establishment of state medicine in this country have emphasized the alleged lack of medical facilities for the citizens and the demand that the state assume charge of medical practice and direct it for the supposed benefit of the neglected needy. None of these have included studies of the actual workings of socialized medicine in European nations, in which it has functioned in different countries from twenty-five to fifty years. The only method of ascertaining the result of such a system is to learn how it has worked out among the people among whom it has been employed. No writer on the subject has offered more vital information than Edward H. Ochsner[1] who spent a period of eighteen months in European countries, where this form of practice has been established over periods of years. He lived not in hotels but in homes of the people in these different countries in order to obtain first hand information of their medical problems. During coming legislative sessions of our states it is asserted that bills for the establishment of state medicine will be introduced and pressed with vigor. Anyone aiming to controvert the demand for such legislation should prepare himself by reading this volume, in which the author demonstrates in a most convincing manner the disastrous results of socialized medicine in all European countries where it has been maintained.

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[1] Ochsner, E. H.: Social Security. Note review page 117.

One can group under three headings the destructive influence of this form of medical practice. First, the author emphasizes the deterioration of the medical profession in all the nations where this plan has been followed. The regimentation of their methods and activities under state control and their restricted incomes have resulted in destruction of initiative which comes from free competition and what is known as successful practice. Physical exhaustion is noted from overwork, where many physicians commonly treated thirty to fifty patients in a two-hour period. The constant multiplicity of reports and paper work is unending. It is stated that in Germany 90 per cent of patients are treated in the Krankenkasse, for which the physician receives the equivalent of twenty to forty cents per visit, leaving only 10 per cent for private practice. The possibility is hopeless for the average physician to obtain a competence or more than mere existence for his family. The author states that this mental and physical deterioration of the medical profession is illustrated by the fact that, while in former years the great medical discoveries of medical science emanated from Germany, during the last thirty-five years, aside from the introduction of salvarsan, no great outstanding discovery has come from that country.

The second obvious failure of socialized medicine is indicated by the increase in mortality and morbidity in countries harboring this plan, compared with other nations without the incubus of this form of practice. The increase of illness is notorious in Germany, France and England, where it is to the advantage of the patient to stay as long as possible on the sick roll. In order to maintain his meager income, the physician must comply with this demand for sickness certification, even when obviously incorrect. Thus malingering has become a fine art. Books are published giving rules how to detect this form of deceit. Naturally the inferior quality of service rendered by the physician, owing to his mental and physical depression, helps to increase the morbidity. These and other conditions are described in this volume with citation of many illustrations.

The third factor to be noticed is the increased cost to the state under this system. Although the remuneration to the physicians who are the backbone of the system has been reduced to a minimum in every country, there is an army of employees checking patients and doctors, in spite of whose reports the superfluous cost of doles and unnecessary medical treatments amount to huge sums. The author makes an impressive comparison with the fall of the Roman Empire which, among other causes, is attributed to the destruction of the middle class for whom the state attempted to provide all their needs, including medical services similar to existing socialized insurance. He quotes writers of that day whose complaint about the malingerers and other imposters on the state might be taken for those of the present day. No volume is available, which presents so many pertinent facts bearing on the demonstrable evils of state medicine as are contained in this book. In the limited available space one cannot go more extensively into its details.

BASIC SCIENCE ACT CONSTITUTIONAL

During the eight years of existence of the Washington Basic Science Act numerous attempts have been made in legislative sessions for its repeal. Having withstood all these efforts for its destruction, it has now been more firmly established than ever by a recent decision of the State Supreme Court affirming its constitutionality. Chiropractor Wehringer was prosecuted for practicing chiropractic without a license. It was established that, before obtaining a chiropractic license, he must pass the Basic Science examination. He contended that this was impossible, since the Basic Science Act required chiropractic applicants to pass examination on subjects which bear no relation "to the functions of chiropractic healing." He was convicted before the Superior Court and appealed to the Supreme Court of the state. The latter ruled that the subjects for examination required by the Basic Science Act are reasonable, although the appellant claimed that pathology and chemistry are not taught in the chiropractic curriculum. The court held that pathology in substance is the same as symptomatology which is included in the chiropractic examinations, declaring that, if a practitioner cannot ascertain the character of an illness, he cannot attempt to treat it. Also, the court stated that the addition to chemistry to the Basic Science subjects is not an unreasonable requirement for anyone desiring to treat the sick. Therefore, a chiropractor is deprived of no constitutional rights by being required to demonstrate an adequate knowledge of the subjects enumerated in the Basic Science Act before receiving a certificate to practice his profession. The conviction of the chiropractor was accordingly affirmed. It is a satisfaction to be assured of this additional support for the permanence of the Basic Science Act of this state.

MEDICAL SCHOOL STATISTICS

It is commonly considered that statistical reports offer the driest kind of reading. Yet, oftentimes one can obtain facts of value from material so presented. The voluminous annual report of University of Oregon Medical School, including Doernbecher Memorial Hospital for Children, Outpatient Clinic and Multnomah Hospital, contains figures, the study of which provides interesting information. From the report one notes an enrollment of two hundred forty-seven students during the past year. These include fifty-four from Washington, five from Idaho and three from California. At last commencement, fifty-four degrees were conferred on doctors of medicine. As observed in all medical schools of the present generation, each institution employs a sifting process to eliminate the unfit and undesirables among the applicants for admission. It is recorded that for the last first year class three hundred twenty applications were received, from which number sixty-five were selected for matriculation, sixteen of these coming from Washington and three from Idaho, with the majority, as is expected, from Oregon. Students in the Department of Nursing Education increased the total registration of the institution to six hundred twenty-seven. The wide area covered by this total number of students is indicated by the fact that aside from Oregon they came from twelve states, the Territory of Alaska, Hawaii and Germany. In all the cities of the northwestern states there are leading physicians who are graduates of this institution. The quality of their work and their success as practitioners are indicative of the high grade of teaching which they have received in medical school.

This report also includes many data relative to the library which is an essential factor in connection with medical study. With more than 20,000 volumes, in addition to unbound periodicals and reprints, details are included showing the extensive patronage from students and practitioners. A review of this report offers many interesting facts covering the activities of the other institutions closely related to the medical school, all of which are valuable for one seeking information concerning the management and attainments of such organizations.

PIERCE COUNTY MEDICAL SURVEY

Much curiosity has been expressed by physicians in various parts of Washington regarding the elaborate survey conducted in Pierce county during 1934 under the direction of The Foundation for Social Research in Medical Care, located in Tacoma. Recently a report has been published, given to the trustees by John Schlarb, Jr., director of the survey. It is stated that factual data were gathered, representing the most complete basis of medical information ever gathered in any community. These data were secured by the expenditure of over $46,000. Information was obtained by personal visitation of the residents of the county who were requested to fill out an elaborate questionnaire pertaining to a great variety of family matters covering their finances, illnesses and other individual matters.

It is stated that the information obtained from these data can be utilized in more economically administering public charities and other expenditures of public funds. It is asserted that the annual saving in the management of the county hospital, tuberculosis sanatorium, and poor farm of Pierce county will be at least $75,000. These savings are said to result from information obtained concerning the individuals cared for in these various institutions, their proper segregation and the curtailment of unnecessary expenditures. It is reported that recommendations evolved from the Foundation's study were approved by county commissioners, State Board of Health, and other committees. The report states that, in seeking state aid for the dependent in Pierce county, the Foundation played an important part, being recognized by the State Health Department as a competent, scientific, health research agency. In obtaining this state aid a future county-state operation basis was established, based on the data thus obtained. The director states that there are further steps to be taken for the final completion of this work. Anyone desiring specific information on this survey and results derived from it should communicate with the director of the Foundation.

SOCIAL SECURITY PAYMENTS

Within recent years eighteen states have passed laws establishing old age pensions, while twelve have adopted aid to dependent children, Washington and Idaho being included among both of these. Also twelve states passed laws giving aid to the blind, among them being Idaho. The Federal Social Security Act made provisions for paying dollar for dollar to the states establishing old age pensions and aid to the blind, with one dollar for two appropriated for dependent children. Within forty-eight hours after President Roosevelt signed the Deficiency Appropriation Act, on February 14 the Social Security Board mailed checks to all of the states making plans for these three forms of assistance for the needy. The largest payment for the old age pensions went to Washington, being $420,000, while Idaho received $157,000. For the aid to dependent children, Washington received $95,505, with $10,133.33 going to Idaho. For aid to the blind, Idaho received $6,300. These figures are indicative of the contributions from the Federal government which may be anticipated for support of the needy in those states which have enacted laws to appropriate funds to aid these classes of citizens.

SUMMER MEETINGS

It will probably be of interest to note the days and partial programs for meetings of the three state associations which are scheduled for the coming summer. The Pacific Northwest Medical Association will hold its annual meeting at Portland, July 7-10. The list of speakers includes Chevalier Jackson on ear, nose and throat; Ray M. Balyeat, allergy; Carl Davis, gynecology; D. J. Davis, pathology; P. J. Hanzlik, pharmacology; Alexis Hartman, pediatrics; Walter J. Meek, physiology. There will probably be others on the program whose names will appear later. University of Washington Extension Course has scheduled its Postgraduate Course of Lectures for July 20-24. The faculty consists of James H. Means of Harvard, medicine; Wilburn H. Smith of College of Medical Evangelists, gynecology; Harry B. Stone of Johns Hopkins, surgery; John L. Pollock of Northwestern University, nervous and mental diseases. Washington State Medical Association will hold its annual meeting at Yakima, August 31-September 2. Idaho State Medical Association will present its second annual postgraduate course of lectures at Boise, August 31-September 4. The date for the Oregon State meeting has not yet been announced. Details of these meetings will be presented in due time with the list of speakers and something pertaining to their subjects.

MEDICAL NOTES

OREGON

Oregon Association of Hospitals held its annual meeting at Medical Dental Bldg., Portland, February 14. The program included addresses by Courtney Smith, Clackamas county health officer, W. R. Taylor, Wasco county health officer and Frederick Stricker, secretary of the state board of health. The association accepted a report recommending for nurses uniform salaries, an eight hour day and a day off each week for graduate nurses on general duty. R. W. Nelson of Portland was elected president.

Spread of Epidemic Disease. At times common diseases of children approach epidemic proportions. Such was the case last month in Washington county, where in some country districts nearly all the pupils were affected with measles. In some counties schools were closed on account of scarlet fever and elsewhere similar action was necessitated by influenza epidemics. Health officers recognize that these diseases as well as common colds are often propagated, not being due entirely to lax enforcement of quarantine laws. The same conditions have been found in other parts of our northwestern states. By offering frequently sanitary suggestions physicians may be able to help decrease the morbidity.

Hospital Enlarged. Willamette Hospital is being enlarged and modernized. A new men's ward is being added, also a special ward for contagious cases is being prepared. There will be external improvements to add attractiveness to the institution.

College Infirmary To Be Built. A college infirmary is to be built at Corvallis, to be located across Twenty-third street from the college buildings. A three-story, fireproof, concrete building will be constructed at a cost of $100,000.

Hospital Reopened. J. B. Gregory of Wallowa has reopened his hospital which was closed while he was operating the Hot Lake Sanatorium. This institution was closed two months ago.

A. B. Stone, a graduate of University of Oregon Medical School, has located at Grants Pass. For seventeen years he was connected with Mid-Columbia Hospital at The Dalles and for the past year and a half has practiced at San Jose, Calif.

Lewis W. Jordan has located for practice at Portland. After serving as interne in Multnomah Hospital, he spent two years at Stanford University Hospital. During the past year and a half he has practiced at Bonneville.

WASHINGTON

Basic Science Examination was held in Seattle, January 9-10. There were fifty-seven candidates, of whom fifty-two were medical practitioners, four osteopaths and one chiropractor. Among the physicians, forty-four were successful and eight failed. Two osteopaths passed the examination and one failed. There was one chiropractor who failed to pass.

A Children's Orthopedic Clinic was held in Tacoma, February 7, conducted by H. B. Allison of Tacoma and H. J. Wyckoff of Seattle. Sixty-five patients were examined, coming from Pierce, Thurston, Grays Harbor and Kitsap counties. When the number of crippled children between the ages of 14 and 21 years has been determined, the State

Welfare Department will outline a program of treatment based on available funds.

Office Moved Bodily. Last month the Seattle Eye, Ear, Nose and Throat Infirmary building, a two-story brick structure, was jackeed up, placed on rollers and moved a block away to a new site. For a number of years it has been located on property adjacent to Swedish Hospital. The desire of the hospital to utilize this for further expansion required its location elsewhere.

Reappointed Health Officer. I. W. Powell of Bellingham was appointed city health officer by the city council, January 24. He succeeds O. E. Beebe in that office. He served in this capacity for many years, being out of office recently following much political agitation and changes among city officials.

Clifford P. Michael, former resident physician at Pierce County Hospital, Tacoma, has become first lieutenant in the medical corps of the United States army and is stationed at Fort Lawton. Later he will go to West Point for further study.

John Flynn of Tacoma, a graduate of Creighton Medical College, has located for practice at Ritzville. He served as interne at St. Joseph's Hospital, and for the last six months has practiced at Mineral.

Russell L. Baker, graduate of Oregon University Medical School, has located for practice at White Salmon. He has served in U. S. Public Health Service and was with the War Department at Bonneville dam. He is associated in practice with J. A. Balsiger.

Nora M. Fairchild has located for practice in Seattle. She was formerly connected with the Department of Ophthalmology in University of Nebraska and more recently did hospital work in India.

Elected President. At the meeting of Seattle Surgical Society last month H. T. Buckner of Seattle was elected president. The other officers installed were John F. LeCocq, Vice-President, and William B. Cook, Secretary.

Jess F. Jacobsen, formerly medical interne at the federal Alcatraz Island prison in San Francisco Bay, has been transferred to Seattle where he has joined the staff at Marine Hospital.

Wedding. Edward LeCocq of Seattle was married to Miss Jane Nettleton of that city, February 4.

IDAHO

Hospital Improvement Completed. Addition and alterations have been completed on Lakeside Hospital, Coeur d'Alene, which have been in progress for several months at a cost of over $5000. An addition 29x36 feet adds eight beds, making a total capacity of twenty-three. Other necessary alterations and equipment were also added.

L. P. Gaertner of Montpelier has departed for a European trip. He will study in Berlin and Vienna, after which he will tour various parts of the country before returning home to resume practice.

OBITUARIES

Dr. Lemon R. Markley of Bellingham, Wash., died February 12, after an illness of ten days, aged 77 years. He was born in Michigan in 1859 and as a boy moved to Nebraska with his parents. His early education was received in Indiana. He obtained his medical degree from University of Nebraska College of Medicine in 1883. He practiced in Nebraska until 1890 when he moved to New Whatcom, which later became a part of Bellingham. For many years he was city health officer and also served on the board of health. He was one of the best known citizens, for many years taking an active part in civic as well as medical affairs.

Dr. Joseph K. Myers of Albany, Ore., died February 10, after an illness of several months, aged 96 years. He was born in Germany in 1840 and came to this country at fourteen years of age. While residing in Iowa he enlisted in the Cavalry and at the Battle of Gunntown, Miss., musket shot blinded one eye. He voted for the reelection of Abraham Lincoln. He obtained his medical degree at the College of Physicians and Surgeons at Keokuk, Iowa, in 1866, and soon afterward located at Albany. He was city health officer for fifteen years. He was chaplain of the Elks Lodge for twenty-four years, said to be the oldest living chaplain of that order in the United States.

Dr. Murray M. Levy of Portland, Ore., died January 24, aged 56 years. He was born in New York City in 1855 and came to Portland from San Francisco twenty-eight years ago. He obtained his medical degree from University of Oregon Medical School in 1917 and practiced in Portland since that time. He was an instructor at University of Oregon Medical School.

Dr. Frederick W. Townsend died at St. Luke's Hospital, Spokane, Wash., January 22, from a cerebral hemorrhage, aged 63 years. He obtained his medical degree from Ohio Medical University, Columbus, in 1895. During recent years he was attached to a CCC unit in Idaho, formerly practicing at Los Angeles. He served in the medical corps in the World War and was in the Spanish American War.

Dr. James Frank Leslie of Marshfield, Ore., died February 4, from pneumonia, aged 57 years. He was born at Evansville, Ind., in 1879. He received his medical degree from Northwestern University Medical School in 1903. He located at Centralia for practice in 1924, moving to Kelso in 1930. He later practiced at Roseburg before locating at Marshfield.

Dr. Frank P. Pratt of Seattle, Wash., died February 13, aged 78 years. He was born in Jackson, Mich., in 1859 and received his medical degree from University of Michigan Medical School in 1883. He located in Seattle in 1903, where he practiced until about fifteen years ago when he retired from active medical work.

Dr. Marion C. Aker of Ritzville, Wash., aged 30 years, died at Sacred Heart Hospital, Spokane, January 17, as a result of septicemia contracted from a tonsillectomy two weeks previously. He was born at Central Park, Ind. He had been established in Ritzville for a short time.

REPORTS OF SOCIETY MEETINGS

WASHINGTON

CLALLAM COUNTY MEDICAL SOCIETY

Pres., U. S. Ford; Secty., W. H. Taylor

Clallam County Medical Society held a meeting at Port Angeles, January 22, following dinner at Port Angeles Golf and Country Club. The program of the evening consisted of a paper by Paul G. Flothow of Seattle, on "Sympathetic Nervous System." William G. Baker of Clallam was elected president for the ensuing year; H. S. Jessup of Sequim, vice-president; W. H. Taylor of Port Angeles, secretary-treasurer. U. S. Ford of Forks was elected delegate to the state association meeting.

COWLITZ COUNTY MEDICAL SOCIETY

Pres., S. J. Sells; Secty., A. F. Birbeck

Cowlitz County Medical Society held a meeting at Hotel Monticello, Longview, February 11. Twenty-two doctors were in attendance, coming from all parts of the county.

The subject under discussion was orthopedic surgery, dealing with crippled children. W. H. Goering of Tacoma and I. O. McLemore of Seattle presented papers on this subject. They are in charge of the State Department of Public Welfare Clinic at Cowlitz General Hospital. About 250 children have been examined in Cowlitz, Chelan, Yakima, Whatcom and Pierce counties. These included patients crippled from disease, congenital defects and neglected fractures.

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

A regular meeting of King County Medical Society was held in the auditorium of Medical Dental Building, Seattle, February 3 at 8:15 p.m., President Forbes presiding.

Minutes of the preceding regular meeting were read and approved.

The following were elected to membership: W. W. Bartine, Belle Conrad, Charles Dennen, C. D. Kimball, W. S. Voegtlin, J. E. Wirth.

Donald Evans discussed a plan to protect maternal health advocated by the Seattle Department of Health and approved by the Board of Trustees of the society.

The paper of the evening was by Frank Hinman of San Francisco on "Prostatism." The disorders which may produce this condition are infections, stone, contracture of the vesical outlet or median bar, carcinoma and simple enlargement or benign hyperplasia. The three latter conditions are the ones usually associated with prostatism. Various methods of treatment were discussed. A warning was made against indiscriminate use of electroresection. Cases for this should be properly selected. In his own practice he employs this method in about 50 per cent of all cases, if bars are included. Of special interest are advances in organotherapy for prostatic enlargement, such as testicular hormones, androtin and inhibin. The actions of each were discussed and the physiologic reasons for expecting therapeutic results.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly meeting of Walla Walla Medical Society was held at Grand Hotel, Walla Walla, February 13. The meeting was preceded by dinner with more than forty physicians present from the Inland Empire, including D. F. Bice, F. H. Brush, Paul Lewis and W. S. Ross of Yakima; also J. P. Brennan and O. Wainscott of Pendleton, Ore., being visitors from the greatest distances. These parties from Yakima and Pendleton were complimented for braving the snow and cold weather conditions to attend the meeting. President John C. Lyman presided and after dinner introduced the speaker, George C. Miller, internist, of Seattle.

Dr. Miller delivered a masterful discussion about lobar pneumonia, reviewing the pathologic changes taking place in the diseased lung, the bacteriologic studies with discovery of the pneumococcus, followed by a careful classification and grouping of cases, the importance of blood cultures and typing of pneumococci so far as prognosis is concerned. Stress was laid on differential diagnosis of lobar pneumonia from bronchopneumonia, tuberculous pneumonic lesions, pulmonary infarcts, massive collapse of lung or atelectasis found at times in postoperative conditions. Finally Dr. Miller discussed treatment, the advantages and disadvantages of various medications and serums, as well as importance of the proper percentage of carbon dioxide in oxygen for hyperventilation of the lung. Discussion was led by F. M. Campbell of Walla Walla.

D. F. Bice, president of Washington State Medical Association, announced the annual meeting to be held August 31 in Yakima.

H. J. Pittock of the Veterans' Hospital was admitted to membership in the society.

The next monthly dinner meeting will be held March 12 with Alexander Heppler, urologist, of Seattle as the speaker.

WHATCOM AND SKAGIT COUNTIES SOCIETIES

Whatcom and Skagit County Medical Societies held a joint meeting in Bellingham, February 3. The feature of the meeting was an address by Delmar F. Bice of Yakima, President of Washington State Medical Association. His subject was state medicine. He enumerated the arguments against socialized medicine obtained from the experience in European countries. He emphasized the burden on the taxpayers which would result from the establishment of such form of practice.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull

The regular meeting of Yakima County Medical Society was held at Commercial Hotel, Yakima, February 10. The usual dinner at 6:30 p.m. preceded the meeting. There were twenty-eight members and one visiting physician present. President William L. Ross, Jr., presided.

James M. Bowers of Seattle presented a paper on "Certain Chest Problems." This was illustrated by numerous stereopticon slides and by beautifully mounted pathologic specimens. Dr. Bowers' talk included the following conditions: esophageal pathology, pleural effusions, miliary tuberculosis, pneumonoconiosis, carcinoma of the lung, bronchiectasis, lung abscess, spontaneous pneumothorax and pneumonia. Following the paper the discussion was opened by Dr. Hull, followed by Drs. Atwood and Duncan.

Various committee reports were presented.

Dr. Bice reviewed his activities for the State Association to date. By vote the dates for the state meeting were set for August 31, September 1 and 2.

Dr. Bice appointed Drs. Scott and Ross on the Program Committee for the state meeting.

IDAHO

SOUTH SIDE MEDICAL SOCIETY

Pres., E. L. Berry; Secty., J. N. Davis

The annual meeting of the South Side Medical Society was held at Boise, January 24. Secretary Davis presented his report for the preceding year.

Membership: Of the fifty available during the early part of the year forty-five are members. Of the five nonmembers only three are eligible. We need them and wish they had inherent loyalty sufficient to continue their support to their chosen profession. As it stands, the percentage is better than 90; our only regret is that we are below the 100. Since the last report the picture has changed in some respects. Five have passed into the realm of memory and we pause to honor this memory and if possible to remember that it should be the purveyor of reason. Five new names have been added to the list; two have moved out, one of them returning. We now have 56 on our mailing list: 52 active; 1 inactive, 1 C.C.C. Med. Corps, 1 out of bounds and 1 nonmedical.

Activities: During the year the Society has held ten meetings, with an average attendance of 22.8. Speakers and material for six were furnished by out of state speakers: Edward S. Pomeroy of Salt Lake City, Geo. A. Cochran of Salt Lake City, Charles B. Ward of Seattle, Paul G. Flothow of Seattle, L. A. Stevenson of Salt Lake City, Alexander B. Hepler of Seattle, L. H. Edmunds of Seattle, G. Gill Richards of Salt Lake City, Joseph Tyree of Salt Lake City, and Gordon E. Davis of Hamilton, Mont.

Speakers and material for four of these meetings were furnished by members of the local society: W. F. Passer of Twin Falls and F. W. MacManus of Buhl, augmented by discussion. Two sets of films were presented: "Traumatic Injuries of the Extremities," furnished by Davis & Geck; "Tissue Culture," loaned by the Washington State College.

The financial statement showed receipts and expenditures of $706.36, with cash on hand, $17.12.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

The regular February meeting of the Council of Oregon State Medical Society was held at the Town Club on February 3, George A. Massey, President, presiding. The Council had the honor and pleasure of hearing Mrs. Rogers N. Herbert, President of the Woman's Auxiliary of the American Medical Association, who made a most delightful talk. She stated that the Woman's Auxiliary, which is now fourteen years old, has over fourteen thousand members. Her message was one to stimulate the society to greater work in making its auxiliary more effective.

Attention was called to the broadcasts of Richard Steele which occur over KXL every Friday at 7:15 p.m. These are snappy fifteen-minute comments on timely subjects and all well worth hearing.

The State Industrial Accident Commission asked in a letter that one of our members who has brought suit against them should be urged by members to withdraw same, as it complicates the carrying out of the act, and is liable to upset the friendly feeling of cooperation which has existed between the Commission and the society members.

Following reading of an application from a member for life membership, it was decided that it is the sense of the Council that life membership, which simply means waiving of dues, shall be available only to those who are unable to pay the regular dues. Should all members in active practice who are eligible for life membership apply for the same, the society would be seriously handicapped for funds to carry on.

Upon invitation of Southern Oregon Medical Society, it was decided that the Council will meet with them in Klamath Falls on May 2. Their program will be orthopedic in the morning and internal medicine in the afternoon. A good program is assured.

The Executive Committee reported that it had retained Mr. Estes Snedecor as legal counsel to advise it on the interpretation of the pronouncements of the Judicial Council of the A.M.A. as they apply to Oregon.

The organization of hospital associations in various parts of the state was discussed and it was felt that these organizations were operating in contravention of the decisions of the Judicial Council of the A.M.A. It was decided that a special meeting should be held on February 17, to discuss the preliminary report of the legal council.

Dr. Sard Wiest, chairman of the Medical Department of the American Red Cross in Oregon, spoke of the safety campaign which they are putting on, covering risks at home and on the farm, as well as on the highway.

On February 17 the Council met in special session at the Campbell Court hotel. As usual, a majority of the councilors from out of Portland were present. The preliminary report of the legal advisor concerning enforcement of the principles of medical ethics was discussed and the report was adopted after a few very minor amendments. Copies of this report which is quite lengthy will be mailed to all members very shortly.

Ralph A. Fenton, a trustee of the A.M.A., was present. He left that night for a meeting of the trustees in Chicago. He was asked to obtain from the Judicial Council an interpretation of the term "free choice of physician."

It was the sense of the Council that it is unfair to private patients for hospitals to give to hospital associations better rates than those given to private patients, in the face of the fact that these lower rates are below the actual cost of rendering the service.

A. S. Bettman, *Editor.*

WOMAN'S AUXILIARY

Portland, Ore., February 26, 1936.

The Woman's Auxiliary to Oregon State Medical Society met in special session February 3, at the Town Club in Portland. The occasion for this meeting was a visit from our National Auxiliary president, Mrs. Rogers N. Herbert of Nashville, Tennessee. At this session every organized group in the state was represented by one or more officers or members, some coming a distance of 375 miles. One member-at-large came 401 miles. Unorganized counties represented were Yamhill, Wasco and Malheur.

Mrs. Herbert was with us only one day, but what a day!

Breakfast with the State President, president-elect and a few friends; conferences with state board members at 10:30 and luncheon at 12:30, at which time Mrs. Herbert was initiated into the Mystic Order of the Rose, an honor conferred only upon distinguished guests of outstanding interest in state and national affairs. Multnomah County Auxiliary entertained the honor guest and members of the State Board with an afternoon meeting and tea. Dinner and an evening meeting with the president and council of the Oregon State Medical Society completed her day with us.

Mrs. Herbert's pleasing personality and interest in our work endeared her to every one and we were loath to let her go. We feel that this visit from our National President has done much to stimulate interest in the work of our auxiliary and to impress upon us the importance of full cooperation between National, State and County Auxiliaries. "In unity there is strength."

At this time a survey is being conducted by our Public Relations Chairman to determine the combined strength of our membership through contacts with other organizations as members and officers. Through these channels we hope to extend our program of health education and preparedness.

Our quarterly news letter is being compiled by our Press and Publicity Chairman and will reach each member of the organization in a short time. I am highly pleased with the work of our committees and feel that each component organization will gain much by frequent communications with them. Mrs. W. F. Patrick, *President.*

WASHINGTON

WOMAN'S AUXILIARY

The Woman's Auxiliary to the State Medical Association was highly honored when our National President, Mrs. R. N. Herbert of Nashville, Tenn., was present at the midyear meeting of the State Board, held in Seattle February 1 at Hotel Edmond Meany. Our state president, Mrs. J. B. Blair, presided ably over a very interesting business session with all state officers present and only one state chairman absent. During luncheon Mrs. O. F. Lamson, second National Vice-President, presided at the request of Mrs. Blair. D. F. Bice, President of the State Medical Association, and N. L. Thompson discussed aspects of state medicine and legislation and Dr. Bice gave the charge to each and every member of the Auxiliary to rally one hundred votes for rational medical legislation next session.

Sharing honors with Mrs. Herbert were two past presidents of the Auxiliary, Mrs. H. J. Whitacre of Tacoma and Mrs. N. L. Thompson of Everett. Mrs. Herbert met the various board members in brief conference following the business meeting and in the evening the King County group were hosts at the Sunset Club to a dinner followed by bridge. Mrs. Frederick Slyfield was in charge of the dinner and entertainment with Mrs. Roscoe Mosiman presiding. Mrs. J. Tate Mason, wife of the American Medical Association President-Elect, was among the honored guests.

Yakima Valley Auxiliary met February 12 in the nurses' home of St. Elizabeth's Hospital for a dessert bridge in which about fifty tables were in play. The proceeds of the party are to go to the ward devoted to the care of crippled children. Last year they purchased surgical beds and supplies and this year they intend to make similar contributions.

Chelan County was happy to have Mrs. Blair with them at their February meeting. Her visit was honored by a large attendance of members at a dinner and round table discussion at Cascadian Hotel, Wenatchee. She was pleased with the report that fourteen Hygeia subscriptions have been placed in as many schools and libraries in the county and that members of the medical group had been provided as speakers for the various P.-T. A. groups in which the members are active.

Spokane County met Valentine's Day at the home of Mrs. C. W. Talbot. Mrs. Don. Palmer, Public Relations Chairman, had charge of the meeting and Charles M. Doland spoke on "Mortality Statistics in Obstetrics." Miss Helen Wilcox, secretary of the State Public Health Committee, spoke on various phases of state medicine. Because of the widespread interest of the program, members were urged to bring guests. Tea was enjoyed following the splendid program.

Mrs. C. L. Hoeffler, President of Snohomish County group, has been ill and in the hospital. At their January meeting Mrs. L. J. Ferrell gave an interesting review of the book, "Dr. Mallory," by Dr. Hart.

Pierce County has sponsored a pure food and drug exhibit before two lay groups, has given seventy-two health programs and has presented them to three thousand high school girls at different times. This record, together with that of King County furnishing speakers for sixty programs whose subjects included dental, mental and social hygiene, gave Washington honorable mention in the Auxiliary letter of the National Public Relations Chairman appearing in the A. M. A. Bulletin.

Mrs. George E. Hoxsey,
Chairman, Press and Publicity.

Hypeersensitiveness to Pituitary Extracts. Although hypersensitiveness to pituitary extract seems to be uncommon, Frank A. Simon and C. F. Ryder, Louisville, Ky. (Journal A.M.A., Feb. 15, 1936), believe that the occurrence of five cases in one hospital in less than two years suggests the possibility that some cases have been unrecognized and others unreported. It seems that this condition would be worth keeping in mind in cases of obscure reactions following delivery when pituitary extract has been used. The hypersensitiveness cannot be produced at will but occurs only in exceptional cases under conditions that are unknown at the present time. It is not merely a matter of certain individuals being predisposed while others are not. The predisposition, even in susceptible persons, is not always present. This is apparent from the fact that the authors' patients had previous injections of pituitary extract which were without effect in producing hypersensitiveness. This predisposition then is apparently present only in certain individuals at certain times. The analogy with hay fever is apparent. Only a relatively small percentage of those who are exposed become sensitized, and of those who do become sensitized many were exposed ineffectively for years before sensitization developed. The persistent, high degree of sensitivity, the presence of reagins and the family or personal history of allergy in two of the patients constitute further evidence that these are not cases of the ordinary anaphylactic type of hypersensitiveness such as may be produced at will in laboratory animals and in man by the injection of a foreign serum.

BOOK REVIEWS

Manson's Tropical Diseases. A Manual of the Diseases of Warm Climates. Edited by Philip H. Manson-Bahr, D.S.O., M.A., M.D., D.T.M. and H. Cantab., F.R.C.P. Lond. Physician to the Hospital for Tropical Diseases, London, the Albert Dock Hospital and the Tilbury Hospital, etc. Tenth Edition, Revised, with 22 color plates, 15 half-tone plates, 381 figures in the text, 6 maps and 38 charts. 967 pp. $11.00. William Wood and Company, Baltimore, 1936.

This book is designed to serve as a handy and practical text book for the physician practicing medicine in the tropics. It is, therefore, quite comprehensive and contains a complete, condensed discussion of all tropical diseases; in addition, a number of diseases which are not peculiar to the tropics but which, because of their parasitic or entomologic etiology fall into a somewhat similar category, are fully described. An instance of the latter and of particular interest to us in the Northwest is a chapter devoted to Rocky Mountain Spotted Fever. A short chapter devoted to avitaminosis is a rather complete summary of these deficiency states and is useful information in any part of the world.

Naturally, a large part of the book is devoted to parasitic diseases. Their full range is covered from intestinal to skin parasites. Diseases due to animal poisons such as snake bite are included. A short chapter devoted to "Running Amok" is an index to how thoroughly the author has dealt with all conditions peculiar to the tropics. Many of the parasitic conditions described are unfamiliar to us in the Northwest, but of those familiar one is impressed with the completeness of the discussion and the help to be derived from it. The reviewer refers especially to the chapter on the dysenteries and liver abscess which includes bacillary, protozoal and helminthic dysentery. These conditions as well as others taken up in the book are discussed in full as to etiology, pathology, diagnosis, complications and treatment. World authorities are quoted freely and opinions expressed by the author are well in accord with present-day conclusions. He presents some observations which are new to the reviewer and in view of the author's wide experience should be of great value.

An appendix of 171 pages is devoted to Medical Protozoology, Helminthology and Entomology and Laboratory methods, which is so complete that the practitional in the tropics should scarcely need any other clinical diagnostic handbook. The reviewer feels that with a library consisting only of Manson's Tropical Diseases and Osler's Principles and Practices of Medicine, one could practice medicine in the tropics. C. C. Goss.

Glandular Physiology and Therapy. A Symposium prepared under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association. 528 pp. $2.50. American Medical Association, Chicago, 1935.

In the introduction it is stated that the Council published a book on Glandular Therapy in 1927, when it was believed that the functioning of the body might be stimulated or retarded by hyperfunction, hypofunction or alleged dysfunction of the ductless glands. Following this there was a tremendous abuse of glandular preparations promoted by pharmaceutical manufacturers. Tablets, powders and solutions for oral administration, representing every tissue of the body that might be assumed to elaborate something in the nature of an internal secretion, were offered for sale. Since that time there has been a very extensive study of glandular secretions, the scientific facts of which are assembled in this volume. Great emphasis is placed on the urinary, pituitary and placental gonadotropic factors. The pituitary gland has been discovered as a store house of hormones. In addition to the gonadotropic properties, investigators stress the diabetogenic, thyrotropic, adrenotropic and parathyrotropic factors. In addition are presented the work on the adrenal cortex, the thymus, the parathyroid, corpus luteum and testis, all representing new phases of endocrinology. In this volume are assembled thirty-one papers written by twenty-six authors, including the leading endocrinologists of the United States and Canada, with others from Europe, all of which have been published in issues of the *Journal of the American Medical Association*. An attempt to review these articles would be superfluous. Describing all the ductless glands and secretions and therapy, one can obtain the essential facts only by personal perusal. The reader can be assured that in this volume are presented no theories, but established facts.

A Textbook of Roentgenology. The Roentgen Ray in Diagnosis and Treatment. By Bede J. Michael Harrison, M.B., Ch.M., D.M.R.E. (Cantab), F.A.C.R., Director of Department of Roentgenology, Vancouver General Hospital, etc. 826 pp. $10.00. William Wood & Company, Baltimore, 1936.

This is an excellent book on roentgenology. It is different from others on this subject in that it puts the horse before the cart; that is, it emphasizes throughout the entire volume the absolute necessity of knowing the clinical side of medicine before attempting to make a roentgenologic diagnosis. This is the subjective interpretation of objective findings, and unless the examiner is familiar with at least the fundamental aspects of clinical medicine and pathology, he cannot intelligently hope to translate the objective evidence of disease seen on a roentgenogram.

The author has given a synopsis of each subject after carefully reviewing the writings of leading authorities on clinical medicine, pathology and roentgenology, inculcating many opinions of his own. He is to be highly congratulated on his method of presenting the subject and the excellence of the book. It is one that every clinician and roentgenologist should have in his library, as it contains much information presented in a most useful and intelligent manner.

Dwyer.

The 1935 Year Book of the Eye, Ear, Nose and Throat. The Eye edited by E. V. L. Brown, M.D. and Louis Bothman, M.D. Ear, Nose and Throat edited by George E. Shambaugh, M.D., Elmer W. Hagens, M.D., and George E. Shambaugh, Jr., M.D., all professors at University of Chicago. 638 pp. $2.50. The Year Book Publishers, Inc., Chicago.

While of necessity a large part of this book is devoted to reports of unusual and rare cases, an abundance of material is presented on the progress of knowledge and therapy of the frequently occurring conditions met with in daily general and specialized practice. It indulges in very little editorial comment, especially in the section on the eye. Its restraining conservatism in the section on the ear and nose merits the approval of the general physician as well as the otologist.

For the ophthalmologist are presented a well-balanced group of articles on phases of the problems of retinal detachment, much material of pathologic anatomy and a modicum of surgical advance. Orthoptics is all but avoided. The otologist will note excellent choice of review on physiology of the ear, an improving definition of the status of petrositis and a scarcity of material on the sinuses. There is much valuable material in the section on the larynx and bronchi.

The general practitioner will note with special interest those articles on the incidence of cataract following use of dinitrophenol and will find much of value in sections devoted to fundoscopic evidences of general disease, indications for tonsillectomy and management of infections of the neck.

Greiner.

A Practical Handbook of Midwifery and Gynaecology. For Students and Practitioners. By W. F. T. Haultain, O.B.E., M.C., B.A., M.B., B.Ch., F.R.C.S.Ed., M.R.C,Pd,, F.C.O.G., Gynaecologist, Royal Infirmary, Edinburgh, etc. And Clifford Kennedy, M.B., Ch.B., F.R.C.S.Ed., M.C.O.G., Assistant Gynaecologist, Royal Infirmary, Edinburgh, etc. 2nd Edition. 356 pp. $5.25. William Wood & Co., Baltimore, 1935.

The first edition of this volume was published nine years ago, since which time there have been many advances in midwifery and gynecology, the substance of which is included in this edition. This is not an extensive exposition of these subjects, being a brief summary of the essential facts of each, arranged with numerical and alphabetical designations. Reviewing anatomy, development and physiology, there follow chapters on antenatal care, pathology of pregnancy, hemorrhages, normal labor, delayed labor and various complications. Following this, manipulations are described, supplemented by complications of the puerperium. Diseases of vulva, vagina and urethra are reviewed with the the necessary facts for their treatment presented.

Social Security. By Edward H. Ochsner, B.S., M.D., F.A.C.S., Consulting Surgeon, Augustana Hospital, Chicago, 231 pp. 50c. The Social Security Press, Chicago, 1936.

This volume is an abbreviation of "Social Insurance and Economic Security," prepared for circulation among laymen as well as physicians. The demand for the original work was so great that this smaller volume is offered, containing the essential facts somewhat abbreviated, which were published in the original volume. There is discussion of compulsory health insurance in all its aspects, of its genesis and undemocratic character. The author describes the inefficiency and corruptness of local governments in this country with many illustrations from Chicago. Dealing with socialized insurance in European countries, a chapter describes the medical deterioration under the system with its hampering of medical progress; others describe how pernicious is economic domination, how it undermines character and encourages parasitism. It is palliative, not curative and is ethically unsound. The reading of this volume will afford much information for anyone seeking facts on this matter of vital consideration. The low cost of the volume renders it accessible to any reader.

High Blood Pressure and Its Common Sequelae. By Hugh O. Gunewardene, M.B., B.S. (Lond.), D.M.R.E. (Cantab.), Clinical Assistant, National Hospital for Diseases of the Heart, London, 1917-1924, etc. 172 pp. $3.00. William Wood & Company, Baltimore, 1935.

The author states that the observations herein recorded are based on the study of 250 cases covering a period of seven years. Its purpose is to guide the general practitioner and to stimulate a further study which may prepare him to avoid certain pitfalls. He states that there are 10,000,000 people with high blood pressure in America, resulting in 200,000 deaths a year, figures which one would think are grossly exaggerated. He discusses the etiology of high blood pressure, concluding that sedentary habits and overfeeding are largely responsible. Persistent, nonrenal hypertension is due to factors which have deranged the normal pressure regulating mechanism of the blood pressure by dysfunction of one of the organs, probably the liver. Infections, including syphilis, play a minor, if any, part in causation. There is a multiple etiology. There is a discussion of sequelae relative to the kidneys, heart changes and arteriosclerosis. Under treatment, rest is a most important feature, while diet cuts little figure except under the heading of moderation. There is no drug which persistently reduces high blood pressure. Occasionally a patient is relieved by bleeding in moderate amount. Electrotherapy has caused a temporary reduction in some cases, but is not dependable. Nothing new is presented in this volume, its contents being found in other works on this subject.

Fundamentals of Biochemistry. In Relation to Human Physiology. By T. R. Parsons, B.Sc. (Lond.), M.A. (Cantab.). Sidney Sussex College, Cambridge. Fifth Edition. 453 pp. $3.00. William Wood and Company, Baltimore, 1935.

A book which has gone through five editions in twelve years must fill a demand from its readers. The author states that the last two years have witnessed fruitful progress in the advancement of biochemistry. Chemistry of muscle metabolism, discoveries concerning sex hormones, knowledge of flavines are some of the subjects which are featured in this latest edition. Basically this volume aims to describe the more important, generally accepted principles which have been derived from the study of chemical changes occurring in the human body. There are chapters on various aspects of proteins and carbohydrates as well as the other substances comprising the human economy. As stated in the title, this volume is a study of fundamentals of biochemistry.

Modern Office and General Practice. A Handbook of Practical Medicine. By Deane R. Brengle, M.D. 320 pp. $3.25. Southern Publishers, Inc., Kingsport, Tenn., 1935.

During recent years the writing of medical biographies has become a pastime and a number of physicians have taken advantage of such writing to record their experiences during a lifetime of practice. This author, born in Illinois in 1888, spent his boyhood in Kansas and after graduating in medicine practiced in Minnesota and the Dakotas, finally locating in Detroit in 1916. In this volume he describes a series of personal experiences in general medical practice. Nothing new or striking is presented, the book being a resume of his own procedures covering a great variety of cases, medical, surgical, obstetric, urologic and along other lines. Diseases are recorded alphabetically, beginning with abortion and ending with vitamins. If one wishes an interesting hour of browsing among the experiences of a successful brother practitioner, he will be entertained by reading this volume.

The 1935 Year Book of Urology. Edited by John H. Cunningham, M.D., Associate in Genito-Urinary Surgery, Harvard University Post-Graduate School of Medicine. 462 pp. $2.25. The Year Book Publishers, Chicago.

This book is a review in abstract of advances in urology for the past year. In many cases the abstract is more intelligible and better written than the original article. What the editor considers urology might be debatable, though the value of the material is unquestionable. Renal sympathectomy goes higher and includes the denervation of the adrenals also and its uses in diseases far removed from urology, such as gastric ulcer and hyperthyroidism.

Among the newer things developed upon in considerable detail, are the different kinds of renal function tests, auto therapy as applied to allergic conditions and the ketogenic diet in treating bacillurea. Cancer is taken up very much in detail under the various organs affected. Malignancies, in general, occupy more space than has in times past been given to them. On the whole it is neither better nor worse than the previous year books, but just what the title implies, a collection of abstracts covering the really good material that has been published during the past year.

W. R. JONES.

A TEXTBOOK OF BACTERIOLOGY. By Thurman B. Rice, A.M., M.D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine, 551 pages with 121 illustrations. Cloth, $5.00 net. Philadelphia and London: W. B. Saunders Company, 1935.

This book meets the desire of those wishing a short textbook of bacteriology, containing essential information for the private practitioner as well as students desiring the facts of this branch of medical science. Technical processes described in detail are those which the practicing physician can perform in his office. Drawings are simple and suggestive of the teachings to be conveyed. The fifty-eight chapters of this book discuss various forms of bacteria, the methods of their study and destruction and their relationship to disease. Different groups of organisms are studied, the facts about each being individually presented. The study of each organism covers its history, morphology, cultural characteristics, laboratory diagnosis and lesions which it produces. The information contained in this volume will be gratifying to the reader who cannot devote time for the thorough study of bacteriology.

MODERN TREATMENT IN GENERAL PRACTICE. Volume II. Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E., Fellow of King's College, London. 382 pp. $4.00. William Wood and Company, Baltimore, 1935.

This volume presents a series of forty papers by nearly as many authors, most of them from the British Isles with a few in other parts of the Empire and one or two from America. Each paper constitutes a chapter by itself. They cover a great variety of subjects, medical, surgical, pathologic and others. As indicated in the title, only treatment is considered. Among other conditions covered are included diseases of lung, stomach and the remaining digestive tract, and urinary tract. These include both medical and surgical conditions of these organs. A variety of fractures are included, treatment being well illustrated. In this volume one will note many useful suggestions presented by writers of authority connected with many educational institutions and hospitals.

THE MODERN TREATMENT OF BURNS AND SCALDS. By Philip H. Mitchiner, M.D., M.S. (Lond.), F.R.C.S. (Eng.), Surgeon and Lecturer in Surgery, St. Thomas' Hospital, etc. 64 pp. $2.00. William Wood and Company, Baltimore, 1935.

This volume offers a description of the technic and results of treating burns by tannic acid application. Chapters deal with spray technic for various kinds of burns, electric, x-ray, radium, chemical, etc. The Bettman method of combining tannic acid with nitrate of silver is not mentioned. This is a thorough explanation of the tannic acid method.

NORTHWEST MEDICINE

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SPECIFIC IMMUNIZATION IN THE TREATMENT OF CHRONIC INFECTIONS

Mervyn J. Fuendeling, M.D.
TWIN FALLS, IDA.

To the general practitioner and to the internist the therapeusis of chronic infectious diseases and their sequelae is a constantly recurring problem. The multitude of procedures suggested for the treatment of these patients is itself ample evidence that no particular approach has proven uniformly successful. In fact, it is difficult to glean from the literature any concerted opinion as to the basic mechanisms involved in the production of symptoms. The present paper is a record of one practitioner's experience with the various manifestations of chronic infections and in particular deals with the phenomenon of antibacterial immunization.

The clinical syndrome of chronic diseases of infectious origin is remarkably varied in its symptomatic content so that it is difficult to define precisely just what we mean when we apply the term to the patient. However, there are certain symptoms and signs which are sufficiently outstanding to serve as diagnostic criteria. There is usually present evidence of toxic absorption, the patient is easily fatigued and complains of vague gastrointestinal disorders. It is not unusual to elicit symptoms of a mild sort in the upper respiratory tract along with joint pains, neuritis or arthritis and, if the patient is given to careful observation, he will sometimes be aware of occasional minor elevations in temperature.

Physical examination of the patient is not as a rule particularly revealing. One may find signs of a low-grade infection in the sinuses, chronic tonsillar infection, a lowered blood pressure, poor capillary flow in the extremities, generalized tenderness along the colon, and perhaps most of all the general appearance of what we call a chronic toxic state. Sometimes, of course, the patient displays swollen joints with actual exostoses, and pressure along nerve trunks will occasionally give evidence of a true neuritis. I have found no consistency in the blood count; often the leukocyte count is slightly above normal with a preponderance of lymphocytes but in other cases the total count will be low and there may even be a relative increase in polymorphonuclear neutrophiles. Naturally, patients who have reached the point of seeking medical aid because of a generally lowered functional state are apt to show signs of kidney damage to a greater or lesser degree, although there is no clear-cut evidence of cause and effect in this relationship.

To sum up the clinical picture, both signs and symptoms are strikingly protean and the diagnostic criteria are more nebulous than we should like them to be. Nevertheless, the chronic infectious state in its ordinary manifestations is readily recognizable and is found in a very considerable proportion of adults consulting the general practitioner. When one examines the mechanisms invoked to explain the production of signs and symptoms, it becomes obvious that no proof acceptable to the medical scientist has as yet been advanced for any particular theory.

The clinical history in general points to the establishment of a bacterial focus at some time in the patient's life. This episode is often in the form of an acute infection with some member of the pyogenic group of microorganisms. The patient survives the acute attack but the tissue response for some reason or other is inadequate to completely destroy the invader and an equilibrium of sorts becomes established between the parasite and the host. This nidus of infection leads to the gradual development of the clinical picture as described above by virtue of toxic absorption from the local site of infection with subsequent sensitization of remote tissues, such as the joints or the lungs, or by the establishment of secondary foci in other areas due to the spread of the infecting agent by mechanical transfer through the lymphatics, the blood stream or sometimes by spreading over mucous surfaces.

Critical examination of the therapeutic agencies available in the treatment of the chronic infectious state indicates that no single measure has been uniformly successful in past experience but one gathers that there are a multitude of agents, each of which serves a useful purpose.

Perhaps the most direct approach is surgical removal of the infected tissue. Occasionally surgical intervention produces a brilliant result as in the case of badly infected tonsils or teeth without any secondary involvement in other sites. However, it is impossible as a rule to follow through with surgery because of the fact that secondary foci become established early in the course of the disease. For example, a common sequence is upper respiratory infection with sinusitis, tonsillitis and, finally, through the swallowing of infectious material, the development of a bacterial bowel implant. Surgical removal of the tonsils under these conditions simply obliterates one small reservoir and does not remove either the source or the secondary focus from which most of the absorption occurs.

One of the dictates of the art of medicine is to consider the patient's comfort and symptomatic treatment is aimed at this end. Unfortunately the treatment of symptoms is self-limited; one cannot prescribe an indefinite course of anodynes, antipyretics, etc. While highly useful in establishing a satisfactory morale, symptomatic treatment ultimately fails largely because it does not affect the source of the disease picture.

Besides surgical removal there are available certain other measures aimed at direct treatment of the infected focus. For example, low-grade infection in the antra is often improved by the establishment of proper drainage and ventilation. Drugs or germicides can be applied to the focus or the various physical therapeutic agencies may be employed. Diathermy is certainly a source of comfort in this connection. It must be conceded that, while direct treatment of foci along these lines is of definite help, the focus is but rarely healed and the deeper secondary foci are not reached at all.

Certain general measures which serve to disturb the equilibrium established between the invader and the host have been recognized. Among these should be mentioned nonspecific protein therapy, artificial hyperpyrexia, and the promotion of increased tissue resistance. Both hyperpyrexia and nonspecific protein therapy offer potentialities well worth considering in the handling of the individual patient. Personally, the writer has been disappointed in his experience with these agents, not only because the results are apt to be very spotty, but because both involve a definite element of danger. One cannot predict just what is going to happen when the patient is subjected to shock or fever; we really have very little knowledge of the basic mechanisms involved and neither measure is in any sense specific.

As a means of raising bodily resistance the patient is usually advised with respect to exercise, fresh air, rest periods and diet. Undoubtedly each of these factors is of the utmost importance and taken altogether they contribute in a large measure to the success of any program for the treatment of the chronically ill patient. As separate factors for the individual patient their clinical administration is not entirely ideal. We cannot always advise a change of climate, four to six hours daily in the sunshine, etc., when even the maintenance of regular meal hours often presents difficulties. By and large, however, sensible advice along these lines certainly helps. As to the vitamins, there seems to be no evidence that an increase in vitamin intake, over and beyond that obtained in a normal diet, has any appreciable effect in increasing resistance.[1, 2, 3, 4, 5, 6]

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1. Werkman, C. H., Nelson, V. E. and Fulmer, E. I.: Immunologic Significance of Vitamins; Influence of Lack of Vitamin C on Resistance of the Guinea-pig to Bacterial Infection, on Production of Specific Agglutinins and on Opsonic Activity. J. Infec. Dis. 35:549-556, May, 1924.
2. Cramer, W. and Kingsbury, A. N.: Local and General Defenses Against Infections and Effect on Them of Vitamin-Deficiency. Brit. J. Exper. Path. 5:300-304, Oct., 1924.
3. Thomas, M.: Rep. Med. Off. Hlth., Glasgow, p. 112, 1931.
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5. Lassen, H. C. A.: Die Bedentung der Vitamin für den Verlauf von Infektionen. Ztschr. f. Immunitätsforsch u. exper. Therap. 73:221-239, 1932.
6. Freund, R.: Die Beeinflusung der experimentellen chronisch verlaufenden Meerschweinchentuberkulose durch bestrahites Ergosterin. Beitr. z. Kiln. d. Tuberk. 78:666-670, 1931.

Finally, the possibility of specific immunization must be considered. Of all the approaches this has perhaps the best theoretical and experimental background. Ever since Pasteur's observations on immunization against chicken cholera and anthrax there has been a steady progression of laboratory research dealing with various aspects of artificial active immunization, and there can be no doubt about the effective production of such immunity in animals and man. Clinically the use of vaccines in connection with the treatment of chronic infections has not been always successful but the results have been striking enough to make the present day practitioner automatically consider the possibilities of vaccine administration when he examines the individual case. Despite a not inconsiderable proportion of disappointing results, the clinician is inclined to adhere to vaccine treatment because he recognizes its rationale and because the reason for unsuccessful cases can be found as a rule, if one pays particular attention to the criteria for selection of patients and the type of vaccine used. In the present series every effort has been made to select candidates for administration of vaccines with great care. Equally important, I believe, is the fact that a new and better type of antigen has been employed.

PROCEDURE FOLLOWED IN THE PRESENT SERIES

Preliminary study. Of the fifty patients with whom this paper deals, all were subjected to the following routine. First, a thorough history was taken, paying particular attention to episodes of infection. A careful physical examination followed, in which the search for current evidence of low-grade infectious foci was stressed. Whenever possible I have sought to trace the progression of the infection from the original focus to secondary foci through both history and physical examination. The latter has been routinely supplemented by the usual routine laboratory tests. One of the most significant details of procedure has been the detection and identification of the bacterial invader. For this purpose cultures were taken in aerobic and anaerobic media from such areas as seemed involved. For instance, the sequence already mentioned above, of progressive infection from sinuses to tonsils to bowel, has been an indication for culturing these sites. Cultures were taken on moistened sterile swabs from the nasal fossae, sometimes directly from the antra, from the tonsils and also from the sigmoid mucous membrane following a cleansing tap water enema. Not only has the history been suggestive of such a progression but cultural examination has usually revealed identical flora in these areas, confirming Parkinson's observations.[7] The final identification of the organisms isolated during the examination of foci presents an additional step in what is, to the patient, an already sufficiently complicated routine but to my mind it is well worthwhile and leads to a more thoroughgoing grasp of the individual's clinical problem.

With the diagnosis established, foci detected and the causal agent or agents identified, treatment requires a critical selection from the possible procedures available. Just where emphasis is to be placed varies, of course, from patient to patient. Sometimes it is essential to begin with surgical removal of diseased tonsils or an involved gallbladder. On other occasions it may seem best to bolster up resistance before undertaking whatever surgery is indicated. I have found symptomatic treatment to be of great assistance in the early phases of treatment in establishing a good morale. During this time general measures such as dietary regulation, physical therapy, and promotion of drainage from infected tissues are all useful. While this program is being instituted specific immunization is carefully begun, using undenatured bacterial antigens made according to the method of Krueger, at University of California.[8, 9, 10]

The antigen. It may be well to digress for a moment and describe briefly the properties and mode of preparation of Krueger's antigens. It was his concept that the bacterial proteins which, together with their attached haptenes represent the major antigenic fraction of bacteria, were altered by the killing procedures commonly employed in making vaccines. Proteins in solution under ordinary conditions are readily denatured by heat and by a great variety of chemicals. Krueger and Nichols[11] have shown that bacterial proteins behave similarly and that even temperatures of 40 to 45 degrees C. will repeatedly denature the protein. The denaturation reaction is characterized by a loss of solubility at the isoelectric point, an increase in viscosity, the loss of capacity for crystallization, a rise in optical rotatory capacity, and the appearance of sulphydryl groups; all these phenomena seem to depend upon an intramolecular rearrangement.

To avoid denaturation in the preparation of bacterial immunizing solutions Krueger has employed the following technic:

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[7] Parkinson, S. N.: Intestinal Bacterial Flora in Chronic Sinus Disease. Laryngoscope. 45:140-148, Feb., 1935.

[8] Krueger, A. P.: New Type of Ball Mill for Maceration of Tissues and Bacteria under Aseptic Conditions. J. Infect. Dis. 53:185-186, Sept.-Oct., 1933.

[9] Ibid: Method for Preparation of Bacterial Antigens. J. Infect. Dis. 53:237-238, Sept.-Oct., 1933.

[10] Krueger, A. P. and Ritter, R. C.: Preparation of Graded Series of Ultrafilters and Measurement of their Pore Sizes. J. General Physiol. 13:409-418, March, 1930.

[11] Krueger, A. P. and Nichols, V. C.: The Denaturation of Staphylococcal Proteins. J. Bact. 30-401-409, Oct., 1935.

1. Organisms are grown in large quantities on media designed to maintain the organisms in an actively antigenic phase.

2. The bacterial cells are harvested in isotonic solution and all metabolites and media constituents are removed by washing four or five times in fresh Locke's solution.

3. The thick cell suspension is ground in a special ball mill.

4. Intact cells are removed from the suspension by filtration through acetic collodion ultrafilters which permit passage of substances in solution and small fragments while retaining whole cells.

5. The solution is standardized on the basis of undenatured protein content (6 mg. protein N/100 ml.)

The antigen solutions prepared by this method contain the native bacterial proteins with associated carbohydrates in solution and in the form of a highly dispersed colloidal phase, that is, bacterial fragments which have not gone into solution. Clinically, their use has been attended with considerable success and a number of authors have reported impressive series in which these antigens were employed.[12, 13, 14, 15]

Mode of antigen administration. The antigen is administered hypodermatically two or three times a week, beginning with a dosage of 0.1 mg. and increasing the amount gradually until evidence of clinical improvement is noted. At this point further increase in the amount given is stopped and the patient is kept on the maintenance dose as long as he continues to show a gain. Overdosage with the production of reactions is decidedly undesirable and every effort should be made to avoid it. Fortunately, general reactions are very rare with the undenatured antigens, although it is possible to produce striking focal reactions in involved joints, for example, if too much antigen is administered. The duration of treatment varies greatly but should be continued as long as there is evidence of activity in the bacterial foci. Commonly, improvement is first noted in from four to six weeks and from then on is progressive. Most of the cases in the present report were under treatment from two to twelve months.

In order to utilize local immunization as well as general immunization topical treatment is carried out along with hypodermatic administration of antigen. The topical solutions contain the antigen in half-strength and are made with 1 per cent peptone in Locke's solution; the peptone apparently increases local absorption. The topical antigen is applied to the sinuses by means of Proetz displacement technic, one or two treatments a week being given over several months period of time. For technical details the reader is referred to reports on the treatment of sinus infections with undenatured bacterial antigens by Kracaw, Hosmer and Womack. Occasionally similar solutions are used for local immunization in the bowel by administration in retention enemas.

CLINICAL RESULTS

There is an obvious difficulty in assessing the value of a given therapeutic agent in the treatment of chronic infectious diseases. One cannot tell exactly how far the individual patient would progress on general measures alone without the use of antigen; this objection has not been circumvented in the present work on immunization with undenatured bacterial antigens. I have attempted to establish a base-line of general treatment, from which the additive effect of immunization could be estimated. Quite naturally past experience with similar cases has served as a mental yard-stick, particularly since it has not been feasible to maintain the ideal control system of treating alternate patients.

With these limitations well in mind I am still forced to conclude that the clinical results summarized in table 1 are in a very large measure due to the immunization procedures employed. It is quite conceivable that in a series of fifty patients suffering from a great variety of chronic complaints, one could obtain over 75 per cent of good end-results by the institution of a program in which immunization is not included. However, I doubt if this would apply to the current group, inasmuch as all these patients were selected because of the severity and chronicity of their symptoms together with a history of failure to improve in the past on the usual modes of treatment. The fact is that there seems to be a qualitative difference as well as a quantitative one in the response of patients treated with undenatured antigens. Clinical progress not only occurs when it probably would not occur without the use of antigen, but the rate of progress is faster and the symptoms of toxic absorption frequently disappear early in the course of treatment.

Results have been classified as "good," when the patient's major presenting symptoms were com-

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[12] Kracaw, F. C.: Chronic Sinus Infection. New Method for Its Treatment. California & West. Med. 40:228-234, April, 1934.

[13] Hosmer, N. M.: Chronic Paranasal Sinusitis; Treatment with denatured Bacterial Antigens. California and West. Med., 43:24-27, July, 1935.

[14] Womack, D. R.: Use of Undenatured Bacterial Antigen (Krueger). Laryngoscope, 45:554-559, July, 1935.

[15] Kracaw, F. C.: Treatment of Chronic Sinus Infection with Undenatured Bacterial Antigens. Laryngoscope, 46:26-31, Jan., 1936.

CASE REPORTS

Table 1

	Staphylococcus Aureus		STREPTOCOCCUS Hemolytic						B. COLI		Other Organisms	Results
			Microaerophile									
	Hemolytic	N-Hemolytic	Alpha	Alpha Prime	Beta	Alpha	Alpha Prime	Gamma	Hemolytic	N-Hemolytic		
1. **M., 54.** Arthritis eight yrs. Chr. osteomyelitis of hip. Easily tired. Vague aches and pains.	Antra Osteosinus Colon								Colon			Fair
2. **M., 43.** Arthritis deformans: early. Digestive disturbance. Alternate constipation and diarrhea. Glycosuria.	Antra Prostate Colon								Colon	Colon	From Antra: Hemophilic Gram-negative rod From Colon B. aerogenes	Good
3. **F., 60.** Advanced generalized arthritis deformans.	Antra Colon Cervix	Colon							Colon	Colon	From Antra: B. influenza	Fair
4. **M., 67.** Arthritis 1 year, progressive, beginning deformities, easily tired. "Slipping" rapidly.	Antra Colon Prostate								Colon		From Antra: Friedlander's bacillus	Good
5. **F., 22** Rheumatism for 2 yrs. Acute exacerbation accompanied with septic throat and rapidly destructive changes of right shoulder, complicated with acute appendicitis and bacteremia.	Appendix Blood											Good
6. **F., 28.** Easily tired. Vague aches and pains. Digestive disturbance.	Antra Colon Cervix								Colon		From Colon: B. aerogenes	Good
7. **F., 31.** Rheumatism of left side. Digestive disturbance. Constipation. Very easily tired. Cardiac pain.	Antra Colon Cervix								Colon Cervix			Fair
8. **F., 28.** Rheumatism all over, joints swell and hurt badly. Easily tired. All in.	Antra Colon Cervix								Colon Cervix		From antra: B. pyocyaneus From Colon: B. pyocyaneus	Fair
9. **M., 26.** Easily tired. Epilepsy. Digestive disturbance	Antra Prostate Colon							Prostate Colon	Antra Colon			Good
10. **M., 12.** Easily tired. Joint pains for two years. Cardiac pain.	Antra Colon							Colon	Colon	Colon		Good
11. **F., 59.** Headaches. Early arthritis with deformity. Insomnia. Easily tired. Catarrh.	Antra Colon Cervix							Colon	Colon		From Antra: Hemophilic Gram-negative rods	Fair
12. **F., 28.** Easily tired. Neuritis of shoulders. Digestive disturbance. Constipation.	Antra Cervix Colon Dental pulp							Cervix Colon	Colon			Good
13. **F., 25.** Asthma. Tires easily. Vague aches and pains. Constipation.	Antra Colon Cervix							Antra Colon	Colon Cervix		From Antra: Pfeiffer's bacillus	Fair
14. **M., 46.** All in. Something wrong, because does not feel right and cannot do a day's work. Has sinus trouble. Joints hurt.	Tonsil Colon Prostate							Colon Prostate	Colon			Good
15. **F., 49.** Always tired. Sleeps and eats well but never has a well day. Seems to always have a cold. Cardiac pain. Nervousness. Vague aches and pains.	Antra Tonsil Cervix Colon				Tonsil	Tonsil		Colon	Colon Cervix		From Antra: Hemophilic Gram-negative rods	Good
16. **F., 36.** Migraine headaches. Constipation. Nervousness. Does not feel well, but does not know why.	Tonsil Tooth socket Dental pulp Antra					Tonsil Tooth socket Dental pulp	Tooth socket Dental pulp Tonsil Colon Cervix	Colon	Colon Cervix			Good
17. **F., 39.** Losing weight. Chronic cough. Rheumatism. Sinusitis. Tires easily.	Antra Cervix					Antra Colon		Antra	Colon			Good

CASE REPORTS

Table 1—*Continued*

	Staphylococcus Aureus		**STREPTOCOCCUS Hemolytic**						**B. COLI**		**Other Organisms**	**Results**
			Microaerophile									
	Hemolytic	N-Hemolytic	Alpha	Alpha Prime	Beta	Alpha	Alpha Prime	Gamma	Hemolytic	N-Hemolytic		
18. M., 59. Tires easily. Vague aches and pains. Nervousness. Constipation.	Tooth socket Tonsil Prostate			Tooth socket		Antra Tonsil		Prostate Colon	Antra Colon		From Colon: B. welchii	Good
19. F., 27. Indefinite history of fatigue and physical degeneration following birth of baby four years ago.	Antra Tooth socket Cervix Colon					Antra Tooth socket	Tooth socket	Antra Colon	Cervix Colon			Good
20. F., 44. Easily tired. Cardiac pain. Digestive disturbance. Constipation. Nervousness. Vague aches and pains.	Antra Cervix Colon					Colon	Colon	Cervix	Colon			Fair
21. M., 43. Rheumatic pains in arms, legs, and feet. Continuous cold. Cardiac pain. Easily tired.	Antra Prostate Colon					Colon	Antra		Prostate Colon			Good
22. F., 30. Vague aches and pains in extremities. Easily tired. Nervousness. Catarrh.	Antra Cervix Colon					Colon			Antra Colon			Good
23. F., 50. Asthma. Easily tired. Constipation. With asthma, swelling and painful joints.	Antra Colon Cervix				Antra Colon Cervix	Colon			Colon			Good (death from cardial failure)
24. F., 46. Asthma. Digestive disturbance. Constipation. Early arthritis with deformity.	Antra Cervix Colon					Colon			Colon		From Cervix: Friedlander's bacillus	Good
25. M., 51. Sciatica. Arthritis, early deformans. Easily tired. Constipation.	Antra Colon				Antra		Colon		Colon	Colon		Good
26. M., 52. Arthritis deformans—advanced.	Antra Colon					Antra Colon			Colon	Colon		Good
27. M., 46. Arthritis deformans—moderate.	Antra Colon				Antra	Antra Colon			Colon			Fair
28. M., 42. Arthritis deformans—early. Hayfever. Sinusitis. Loss of weight. Easily tired.	Antra Prostate Colon				Antra Colon		Colon		Colon			Fair
29. F., 32. Easily tired. Vague aches and pains. Early arthritis of hip. Sinusitis. Digestive disturbance. Constipation.	Antra Colon Cervix	Cervix			Antra Colon	Antra Colon			Colon			Good
30. F., 67. Sick headaches. Digestive disturbance. Arthritis deformans — moderate. Easily tired.	Tonsil Antra Cervix Colon				Tonsil Cervix Colon	Tonsil Antra Cervix Colon			Colon			Good
31. F., 25. Sinus trouble. Bronchitis. Constipation. Very easily tired.	Antra Cervix	Antra				Antra Colon			Colon			Fair
32. F., 40. Easily tired. Constipation. Digestive disturbances. Sinusitis.	Antra Cervix					Antra	Antra Colon Cervix		Colon		From Colon: B. aerogenes	Good
33. M., 40. All in, no pep, no ambition. Constipation. Digestive disturbance. Catarrh.	Antra Prostate Appendix Colon					Antra Appendix Colon			Colon		From Antra: Hemophilic Gram-negative rods.	Good
34. M., 38. Easily tired. Digestive disturbance. Vague aches and pains, especially in joints. Sinusitis.	Antra					Antra	Antra Colon		Colon			Good
35. F., 46. Weakness of extremities. Cardiac pain. Nervousness. Very easily tired. Constipation.	Antra Cervix					Cervix	Antra Colon Cervix		Colon			Good
36. F., 31. Easily tired. Nervousness. Insomnia. Vague aches and pains. Cardiac pain.	Antra Colon Dental pulp					Antra Tonsil	Antra Tonsil Colon Dental pulp		Colon			Good

CASE REPORTS

Table 1—*Continued*

	Staphylococcus Aureus		**STREPTOCOCCUS Hemolytic**						**B. COLI**		**Other Organisms**	**Results**
			Microaerophile									
	Hemolytic	N-Hemolytic	Alpha	Alpha Prime	Beta	Alpha	Alpha Prime	Gamma	Hemolytic	N-Hemolytic		
37. F., 35. Easily tired. Constipation. Vague aches and pains.	Antra Tonsil Cervix Colon				Antra Tonsil Colon	Colon			Colon			Fair
38. F., 22. Easily tired. Constipation. Digestive disturbance. Catarrh.	Colon					Antra Colon Cervix	Antra Colon		Colon Cervix			Good
39. F., 38. Easily tired. Sterility. Catarrh. Constipation. Nervousness. Digestive disturbance.	Antra						Antra Cervix		Colon Cervix	Colon		Good
40. F., 16. Digestive disturbance. Sinusitis. Easily tired.	Antra				Antra Colon				Colon	Colon		Good
41. F., 52. Arthritis deformans—moderate.	Antra Tooth socket Cervix Colon		Tooth socket	Tooth socket					Colon			Good
42. F., 43. Emotional instability. Nervousness. Constipation. Easily tired. Digestive disturbance.	Antra Cervix	Antra		Cervix Colon					Colon	Colon		Good
43. M., 55. Easily tired. Digestive disturbance. Vague aches and pains. Sinusitis. Running ear since six.	Antra Dental pulp Tooth socket Colon		Tooth socket	Dental pulp Tooth socket					Colon			Fair
44. M., 48. Muscles and joints ache. Tires very easily. Cannot do a day s work. Headaches. Sinusitis.	Antra Colon		Tooth socket		Antra	Antra Colon			Colon	Colon		Good
45. M., 35. Arthritis deformans—early. Constipation. Sinusitis.	Antra Tonsil Colon			Tooth socket		Tonsil	Antra Tonsil Colon		Colon		From Antra: Friedlander's B. From Colon: B. pyocyaneus	Good
46. F., 48. Arthritis deformans — early. Digestive disturbance.	Antra Colon			Antra Tooth socket		Colon	Colon		Colon			Good
47. M., 38. Continuous diarrhoea of two years duration. Very easily tired, cannot work. Beginning arthritis without deformity.	Antra Tonsil Tooth socket Colon			Tooth socket		Colon	Antra Tonsil Colon		Colon			Good
48. F., 47. Migraine headache. Neuritis. Nervousness. Easily tired. Constipation. Digestive disturbance.	Tonsil Antra Cervix Tooth socket		Antra			Tonsil	Tonsil Cervix Tooth socket		Colon			Good
49. F., 35. Catarrh. Nervousness. Vague aches and pains. Digestive disturbance. Joints ache.	Antra Cervix Colon		Antra Cervix	Cervix		Colon	Colon		Colon	Colon		Good
50. F., 23. Very easily tired. Marked loss of weight following last pregnancy. Nervousness. Digestive disturbance. Vague aches and pains.	Antra Cervix Colon		Cervix	Antra Cervix			Colon		Colon			Good

pletely alleviated and when restoration of function was evident in joints previously disabled through inflammation; also such criteria as the disappearance of sinus discharge, inflammation of the posterior pharynx and restoration of normal blood pressure have been carefully observed. The results were said to be "fair," when definite improvement was evident but some minor degree of symptoms persisted.

It is the writer's opinion, after carefully reviewing the past several years' experience with patients who have presented themselves for treatment, that the results in the present series are definitely better than those obtained previously and that this improvement can be ascribed to the use of undenatured bacterial antigens.

DISCUSSION

In reviewing this group of patients one cannot help but be impressed with the multitude of ways in which chronic infection manifests itself. The signs and symptoms display a great range of variation even with identical causal agents; it is essential, therefore, to postulate differences in tissue reactivity between individuals. Similarly such differences in reactivity must be invoked to explain the great variations in the distribution and extent of bacterial invasion which occur.

It does not seem at all clear from the findings noted in table 1 that arthritis is always caused by streptococci. In eight patients presenting arthritis as a major complaint cultural examination revealed staphylococcus aureus only. Negative findings of this sort are open to the objection that a prolonged search might reveal a streptococcal strain but in several reexaminations none have been isolated. It is interesting also that those patients infected with staphylococci do not as a rule show the profound toxemic condition which is present in the cases of streptococcal infection. Further, one gains the impression that the greater the antigenic spectrum of the invading group the more generalized the symptom-complex and the greater the malaise and fatigue. Often this wide distribution of symptoms is accompanied by little in the way of physical signs.

It is difficult to explain scientifically the mechanism involved in antigenic actions. Of course, the entire response can be ascribed to immunization and undoubtedly this eventually occurs in a majority of patients, but the prompt disappearance of toxemia and alleviation of symptoms seen quite frequently within a few weeks of beginning treatment does not appear to rest on an immunization basis. Rather, it seems likely that the action in these instances is a desensitization which is followed eventually by true immunization if treatment is continued long enough.

Is the action of undenatured bacterial antigens specific or nonspecific? Since these preparations have in them no metabolites and no media constituents, whatever activity they display is due to their content of bacterial substance and this substance is in an unaltered state, i.e., it does not contain the toxic derivatives which can be prepared from any bacterium by chemical treatment.[16] In the absence of all extraneous constituents it is not surprising that undenatured antigens produce no reactions of the nonspecific type. Specific reactions are evident in the humoral response[17, 18] and perhaps more strikingly in the focal reactions one obtains upon overdosage. Instead of fever, malaise and aching bones such as follow overdosage with an orthodox vaccine, the use of too much undenatured antigen gives rise to focal reactions in the infected or sensitized tissue areas. This would appear to be a striking proof of specificity.

From the practical viewpoint these reactions are helpful in arriving at the maintenance dose, for one can increase the amount administered up to the point of obtaining a focal response and as soon as it is elicited can then drop back to a maintenance amount (that quantity producing favorable clinical progress without any reaction). The tissue response during treatment is often evidenced by a stimulation of phagocytosis, particularly following topical administration of antigen. Obviously this stimulation can be overdone and the topical use of antigens requires careful supervision.

I do not believe that the importance of selecting cases can be overemphasized. Immunization should be attempted only when the disease picture seems to be definitely related to a bacterial incitant and this impression should be backed up by cultural examination. In obtaining cultures a rigid technic should be adhered to; it is essential to use aerobic and anaerobic media and to plate out the cultures on satisfactory blood plates. The selection of pathogenic types from these plates should be carried out by a well trained bacteriologist. With properly selected patients, careful culturing and intelligent administration of the antigen results are evident usually in from four to six weeks. I have found it advisable to prolong treatment for a time after symptoms are entirely absent; by this measure better immunization is secured and relapses are found to occur less often.

SUMMARY AND CONCLUSIONS

Fifty patients suffering from chronic infections of various sorts were studied with particular reference to the causal agents involved and to the mechanism of host invasion. It was found that the usual portal of entry was the upper respiratory tract and that a frequent sequence was the establishment of a low-grade sinusitis, tonsillar infection and finally the development of a bowel implant. The great variation in presenting symptoms is readily explained on this basis; the symptoms and signs in tissue areas remote from the original focus apparently are due to sensitization. In this series the hemolytic staphylococcus aureus plays an important role as a major invader.

228 Main Ave., So.

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THE INFLUENCE OF MODERN PSYCHIATRY ON MEDICAL THOUGHT

A PSYCHOBIOLOGIC INTERPRETATION OF THE NEUROVEGETATIVE SYNDROMES WITH PRESENTATION OF CASE MATERIAL*

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The practical value of psychiatry in medicine is being minimized for three chief reasons: (1) In principle present day medicine rests upon the organic concept of etiology and treatment of disease as evolved upon the contributions of Pasteur, Koch, Virchow and Lister; (2) functional psychiatric problems arising out of emotional conflicts in their clinical manifestations are considered as limited to the frank mental states; (3) the psychobiologic and psychodynamic interpretation of essential hypertension, hyperthyroidism, mucous colitis, angina pectoris, dysmenorrhea, sexual impotence, migraine and tension headaches as representing dysfunction in body physiology, produced by habit disorganization with resultant tension, is still being rejected as unscientific by most clinicians.

This latter concept, however, is not a new one. In 1855, Allen[1] and in 1869, Van Düsen[2] postulated an etiologic relationship between environmental factors, habit training and functional symptoms, especially in headache and mucous diarrhea. In 1905, Meyer[3] stressed the importance of the recognition of the whole disharmony of the individual for a far sighted treatment of constipation, amenorrhea and other matters which usually received medical attention. He pointed out that it was of the utmost importance to correct these disorders but, if attention was not given to the necessity of habit training, such correction was usually of little consequence.

This psychobiologic concept that an individual represents an organismal habit unit, the result of environmental conditioning and again reacting according to a set pattern type to environmental and economic situations (vicious cycle), was progressively discarded during the era of overspecialization. Beginning with the twentieth century, we heard physicians interpret certain presenting symptoms developed on this basis as "nervous," "mental" or "imaginary," when and if they failed to demonstrate bacterial organisms, foreign bodies or tissue pathology to account for such complaints. This attitude has contributed considerably to the growth of quacks in the art of healing.

In studying patients suffering from some of the accepted "functional or idiopathic" syndromes, I was struck by the constancy of an overanxious personality type as common to these different states.[4] Cannon[5] proved experimentally that anxiety and the resultant tension therefrom do produce changes in neurovegetative function and metabolism; the experiences of the World War have taught us that emotional states may produce these same disturbances in man. If we further view the subject from the clinical angle, we find that the constant overlapping of symptoms supposedly specific for certain of these functional entities is outside of the sphere of coincidence. In reviewing the literature, the following clinical correlations have been reported.

Hypertension vs. hyperthyroidism. The correlation between essential hypertension and hyperthyroidism is reported by Plummer[6] who finds hypertension in 47 per cent of exophthalmic and 35 per cent of adenomatous goiter cases. Rahm and Parade[7] find hypertension in one-third of all cases of hyperthyroidism. Askey and Toland[8] found that 30.6 per cent of their hyperthyroid cases showed hypertension. An analysis of one hundred of their cases showed that 33 per cent still revealed an essential hypertension after operation and in 20 per cent there was an aggravation. In 1919, Riesman[9] mentioned a variety of "nongoitrous thyrotoxic hypertension" occurring in women about the menopause. These patients were emotional and had palpitation, sweating, tremor, tachycardia and both systolic and diastolic hypertension. Mannaberg[10] stressed the frequency of tachycardia in hypertension uncomplicated by heart failure. He cited its preponderance in women and "its indifference to digitalis, the concomitant sweating and glycosuria, a rise in the basal metabolic rate and the not infrequent presence of a goiter as good evidence for its thyrotoxic origin." Kerpolla[11] found thyroid enlargement in one-fourth of his female hypertensive patients, and of these about one-half presented symptoms of thyrotoxicosis. These observations and the fact that the basal metabolic rate is frequently elevated in hypertension itself led Parkinson and Hoyle[12] to postulate a "thyrotoxic hypertension." More plausible is the interpretation of Barath[13] who postulates a common sympatheticogenic etiology for hyperthyroidism and hypertension. As he aptly points out, the thyrotoxicogenic etiology is invalidated by the fact that thyroxin does not elevate the blood pressure in controls.

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[1] Allen, J. R.: Suggestions as to Method of Using Narcotics in Nervous Diseases. J. Iowa M. Soc., 2:332-36, 1855.

[2] Van Düsen, E. H.: Observations on a Form of Nervous Prostration (Neurasthenia) Culminating in Insanity. Lansing, Mich., 1869.

[3] Meyer, Adolf: The Role of Habit Disorganizations in the Essential Deteriorations (Dementia Praecox) and the Relation of the Deterioration Process to the Hysterical Neurasthenic and Psychasthenic Constitution. M. Rec., 67:277, Feb. 18, 1905.

[4] Hackfield, A. W.: Objective Interpretation by Means of the Rorschach Test of Psychobiological Structure Underlying Schizophrenia, Essential Hypertension, Graves' Syndrome, etc. Am. J. Psychiat., 92:575, Nov., 1935.

[5] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage. D. Appleton & Co., New York, 1929.

[6] Plummer: Quoted by Askey and Toland, infra.

[7] Rahm, H. and Parade, G. W.: Blutdruckmessungen an Basedowpatienten. Arch. f. klin., Chir., 170:69-78, 1932.

[8] Askey, J. M. and Toland, C. G.: Blood Pressure and Goiter. California and West. Med., 34:80-83, Feb., 1931.

[9] Riesman, D.: Hypertension in Women. J. A. M. A., 73:330, Aug. 2, 1919.

[10] Mannaberg, J.: High Blood Pressure and Tachycardia. Wien. klin. Wchnschr., 35:145-146, Feb. 16, 1922.

[11] Kerpolla, W.: Essential Hypertension. Acta Med. Scandinav., 61:14-19, 1924.

Hypertension vs. hyperglycemia. Mohler[14] reports that thirty-six of forty-six patients with hypertension, picked up during a health survey, showed a glycosuria. Wishnofsky and Byron[15] studied ten patients with essential hypertension and found that in six the fasting blood sugar and that in all ten the blood sugar tolerance curves were higher than normal in the presence of a normal respiratory quotient. Musser[16] says the correlation of hyperglycemia and hypertension is so constant that it would seem as if there might be some relationship to the lowered sugar tolerance other than that of the development of arteriosclerosis in a fat individual who has hypertension. He studied a group of thirty obese hypertensive women and found that they exhibited a marked lowering of sugar tolerance. A second group of fat individuals without hypertension did not have any hyperglycemia. Kramer[17] studied 570 cases of diabetes and found that 39 per cent had a blood pressure of 150 mm. or above. He states that it is unlikely that the diabetes through its hyperglycemia produces hypertension.

Hyperthyroidism vs. hyperglycemia. John[18] quotes the incidence of diabetes in hyperthyroidism as 2.1 per cent, whereas the incidence of diabetes at large is one per cent, an increase of 100 per cent. Of one hundred dextrose tolerance tests in eighty-two cases of hyperthyroidism, 66 per cent of the curves revealed an impaired tolerance. Joslin and Lahey[19] reported the occurrence of glycosuria in 28.6 per cent of 228 cases of primary hyperthyroidism.

Other correlations. The correlation of psychic disturbances and hyperglycemia has been pointed out by Folin,[20] Henry,[21] Raphael,[22] Hackfield[23] and others. The frequent occurrence of acute and chronic "emotional and psychic" crises in hyperthyroidism is well known and Dunlap and Moersch[24] recently reemphasized this phenomenon.

THE PSYCHODYNAMIC MECHANISMS

In figure 1 (follow the broken arrow around from right to left) an attempt is made to show how habit disorganization produces anxiety and fear states and how these then physiologically produce the various metabolic and neurovegetative disorders. An individual adjusts to his environment, through the medium of his intellect localized in his brain, his five senses and his neuromuscular apparatus coordinated through the nervous system. Everything a person does or knows represents integrations on the level of these factors, the underlying basic factor being the reflex. The reflex underlies habit formation; therefore, this process may be spoken of as adjustment and education through habit organization. These habits are the result of training obtained in the home, in school, in church, at play and work, and reflect the environment to which an individual is being subjected. Even one's religion and language are acquired on this basis.

If, then, an individual's habit constellation is inadequate or adapted only to a specialized environment, if he be subjected to social competition, he may get into conflict. His ability to meet situations in decreasing degree will result in inactivity and reduced productivity. This inactivity and reduced productivity creates a feeling of insecurity with a resultant feeling of anxiety and fear. If the individual is incapable of resolving this anxiety by some form of constructive compensation, the resultant tension may manifest itself on several levels. For the purpose of this paper we are interested in the following: (1) he may be tense in his neuromuscular system, manifesting tics, spasms and motor restlessness; this we usually designate as "nervousness." (2) In observing the social environment through the medium of his senses and interpreting these observations through the medium

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[12] Parkinson, J. and Hoyle, C.: Thyrotoxic Hypertension. Lancet, 2:913-917, Oct. 27, 1934.

[13] Barath, E.: Ueber Blutdruckstörungen beim M. Basedowi. Ztschr. f. klin. Med., 111:718-723, 1929.

[14] Mohler, H. K.: Hypertension and Hyperglycemia. J. A. M. A., 84:243-245, Jan. 24, 1925.

[15] Wishnofsky, M. and Byron, C. S.: Carbohydrate Metabolism in Hypertension. Arch. Int. Med., 47:790-798, May, 1931.

[16] Musser, J. H. and Wright, D. O.: Hypertension, Obesity and Hyperglycemia. J. A. M. A., 101:420-425, Aug. 5, 1933.

[17] Kramer, D. W.: Hypertension and Diabetes. Am. J. M. Soc., 176:23-31, July, 1928.

[18] John, H. J.: Hyperthyroidism Showing Carbohydrate Metabolism Disturbances. J. A. M. A., 99:620-627, Aug. 20, 1932.

[19] Joslin, E. P. and Lahey, F. H.: Diabetes and Hyperthyroidism. Am. J. M. Soc., 176:1-22, July, 1928.

[20] Folin, O., Denis, W. and Smillie, W. G.: Some Observations on Emotional Glycosuria in Man. J. Biol. Chem., 17:519, 1914.

[21] Henry, G. W. and Mangam, E.: Blood in Personality Disorders; Biochemical Studies. Arch. Neurol. & Psychiat., 13:743-749, June, 1925.

[22] Raphael, T., Ferguson, W. G. and Searle, O. M.: Long Section Blood Sugar Tolerance Study in Case of Depression. Arch. Neurol. & Psychiat., 19:120-124, Jan., 1928.

[23] Hackfield, A. W.: Are Physiologic Disturbances Related to Acute Psychotic Process in Mentally Ill? Arch. Neurol. & Psychiat., 28:883-890, Oct., 1932.

[24] Dunlap, H. F. and Moersch, F. P.: Psychic Manifestations Associated with Hyperthyroidism. Am. J. Psychiat., 91:1215-1238, May, 1935.

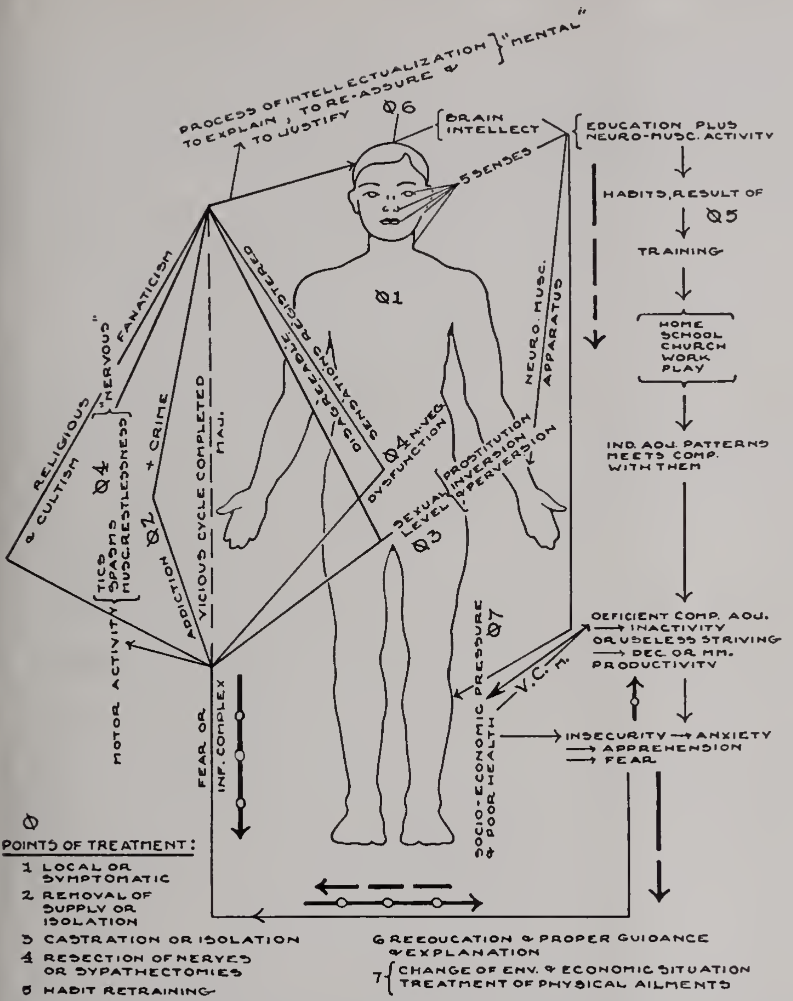

Fig. 1. The above illustration represents a diagramatic presentation of the chief pathologic adjustment reactions encountered in a psychoneurotic. Because of a partial or complete failure in the development of the proper adjustment patterns, an individual encounters difficulty in meeting competition. In his attempts at "aggression" tension states develop, resulting in compensation reactions. The symptoms in the psychoneurotic really represent attempts at healing. Without remedying the basic faulty habit patterns, it is self-explanatory why any treatment directed at any particular symptom must be fraught with temporary relief or failure. That is why in such patients the removal of one symptom is frequently rewarded by the appearance of another symptom or group of symptoms at the same or different levels.

of his intellect, the patient makes comparisons and finds that society's attitudes and habits differ from his. To interpret this discrepancy, he indulges in a process of intellectualization in an attempt at explanation, rationalization, justification, reassurance; a tendency to misinterpret and to form obsessive ideas. These are spoken of as ideas of reference, compulsions, even delusions or hallucinations and are commonly called "mental" symptoms. (3) The anxiety and apprehension may manifest itself on a neurovegetative level, producing a chronic state of hypertension, tachycardia, hyperglycemia, gastrointestinal or glandular dysfunction. In none of these reaction types will you find a pure culture picture. Every hypertensive, hyperthyroid or mucous colitis case will reveal various "nervous or mental" symptoms; every so-called acute or subacute "mental" case will disclose a history of constipation, periods of tachycardia, disturbances in rhythm of the gastrointestinal tract and in metabolism.

POINTS OF TREATMENT ATTACK

With these psychodynamic mechanisms in mind, which have been arrived at through clinical and research observations and agree with the findings of other authors, we may then proceed to construct a rational form of therapy of the neurovegetative syndromes. When we look at figure 1 and consider the individual who suffers from any of the various symptom-complexes under consideration as representing a unit system in relation to his environment, we may interpret the rationale of forms of treatment in practice.

1. *Local or symptomatic* embraces the use of cathartics, diets, alkalis, various antispasmodics and vaccines in the gastrointestinal dysfunctions. In hypertension and angina pectoris we have amyl nitrate and nitroglycerine and many other remedies recommended as specific. In dysmenorrhea local applications and the systematic administration of hormone preparations are in vogue. In thyrotoxicosis the use of Lugol solution combined with diet, rest and general supportive measures have been effectively employed by some internists.

2. *Resection of nerves, sympathectomies or glandectomies.* These operations are based upon the principle of removing a link in the chain producing the symptom. The employment of nerve resection in the case of torticollis and various head and facial tics, once resorted to by many neurologists, is now generally discarded. Recently there has arisen a new wave of enthusiasm with the introduction of the sympathectomy. It has been employed for constipation, hypertension, angina pectoris, hyperidrosis, Buerger's disease and dysmenorrhea. Glandectomies are represented by the subtotal thyroidectomy and by the suprarenalectomy.

3. *Habit retraining and emotional reeducation (psychotherapy), change of environment and attention to general health.* This method of approach attacks the problem from a broad psychobiologic angle which necessitates the employment of many measures in assisting the patient in reorienting himself in society; psychotherapy, occasionally a change of vocation, removal from home, attention to physical health, nutrition and recreation and common sense. This plan for the management of the neurovegetative syndrome bases upon the proposition that the symptom or complex of symptoms represent merely the detectable component of a complex inter- and intraorganismal derangement as schematized in figure 1. Therefore, treatment must be directed at the whole and not alone at any of its parts.

PLAN OF MANAGEMENT

Differential diagnosis. Recent tendencies in medical diagnosis have overemphasized the laboratory approach. Patients have been unnecessarily "belabored" with tests and instrumentation. In many types of cases, especially the cardiac neuroses, such procedures should be kept at a minimum. These people are anxious, tense and suggestible; the spectre of elaborate paraphernalia may aggravate their anxiety and confusion.

Nevertheless, such presenting symptoms may be the expression of an underlying organic process, which possibility must be excluded first. Other detectable organic signs and symptoms are then usually present. The most important differential points in all these neurovegetative symptom pictures are a thorough history, physical examination and an appraisal of the general personality makeup of the patient. The physician, who once has fixed this picture in his mind, will not often mistake it, will be on his guard and proceed cautiously with well advised laboratory and technical procedures.

History. In both sexes are to be noted neuropathic traits during their childhood; a discordant home atmosphere producing early maladjustment in personality structure; sometimes previous "nervous breakdown or nervous prostration"; alcoholism; insomnia and disturbing dreams; fatigue and headaches; fleeting and interchangeable symptoms, as palpitation, excessive perspiration, "dyspepsia," constipation; the present symptom picture not being of acute onset; evidence of the allergy—neurodermatoses complex;** in women menstrual disturbances with or without mood swings; sexual maladjustment; various fears of mice, snakes, bats, fainting, high places; having been to a chiropractor or "truth center"; having taken a health diet; in men precocious ejaculation; sometimes vocational instability and being a Don Juan.

Personality makeup. Male patients: Frequently of the high pressure type with or without motor tension, schizoid mannerisms (except in the mucous colitis syndrome, where the male is also of the "neurasthenic" type); on the defensive with a tendency to boasting, cruelty and fault-finding. Women cannot do their housework, are chronic complainers ("neurasthenic"), overemotional and sentimental, of the nagging type, talkative and tense. Closer observation and acquaintance will reveal that both sexes are procrastinators, are unreliable, anxious, always in a hurry; very seldom profess active outside interests, neither in sport nor communal affairs. If married, evidence of marital and family discord. Their children are usually "nervous," oftentimes problem cases with the probable finding in them of neuropathic traits.

TREATMENT

Every physician knows these "neurotic types." Where their symptoms are a decided handicap, entail suffering or endanger the patient's life, local or symptomatic treatment is indispensable, but must be accompanied or followed up by psychotherapeutic rehabilitation. Therefore, let the patient pour out his troubles. He needs reassurance and comfort in his fear (the transference situation). After two or three visits, place leading questions regarding the home and marital life, the sex life, the social and recreational interests. Consultation with the partner may be indicated to enlist his or her cooperation. Having found the specific cause of the anxiety, with the aid of a sketch and with confidence show him how such emotions (worries and fears) can produce such visceral symptoms. Quote simple examples. Assure him that whenever he changes his style of life such anxiety and "inner sinking feeling" will clear up spontaneously. Place him on a schedule of work, play, sleep and recreation, on the progress of which he reports at scheduled interviews.

These cases come to the physician at the first sign of trouble and under such a regime the results are usually good. A practical rule of thumb, borne out by psychiatric experience, is that, if a dozen sittings

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** The analysis of most psychoneurotics, especially those of the more pathologic type, revealed a history or the actual presence of dandruff, blotchy skin with or without pimples, hyperidrosis of the hands and the feet, urticaria, pruritis, eczema and swellings of the eyelids and lips. It was further observed that allergic phenomena past and present were found in cases of mucous colitis and pylorospasm. When we consider the fact that migraine, eczema and urticaria have been linked with allergy from the etiologic standpoint, and when we consider the fact that these complications cleared up without any specific treatment whenever the psychotherapeutic rehabilitation was carried to fairly successful completion, one cannot help but surmise that the neurodermatoses and allergic manifestations are guilty of psychoneurotic implication.

of combined symptomatic and psychotherapeutic treatment produce no improvement or relief, it is a difficult case with many emotional complications by proliferation, and needs specialized treatment. Recognize this fact and refer the patient. This should be done with expediency in the same manner that one deals with any other difficult medical or surgical problem. To leave such patients to their own resources and to drift from physician to physician and finally to the quack is poor medicine.

More cooperation between the physician, internist and psychiatrist is desirable. A conference and agreement upon a mutual plan is essential. Because of psychotechnical reasons, the referring physician should continue the symptomatic therapy. But an internist treating a mucous colitis symptomatically with some vaccine derived from some hypothetical organism places a handicap in the way of the analytic regime. It is difficult to interpret to such a patient the psychogenesis of his symptoms, when an equally reputable physician postulates all sorts of organic etiologic factors. The same applies to the other functional syndromes.

The usual mode of treatment of anxiety neuroses prior to the introduction of psychotherapeutic methods has been the employment of sedatives in divided doses. This method is indispensable in the early phase and is very efficacious in giving the patient relief. It was the ameliorative effect of sedation that led to the introduction in psychiatry of the sustained narcosis in acute schizophrenic panic states. Working on the hypothesis that the psychobiologic substratum in hypertension and the various other neurovegetative syndromes is essentially the same as that of schizophrenia, the sustained narcosis also suggested itself in these cases. With this in view, I employed the sustained narcosis in an essential hypertension with immediate response.

The following few varieties of neurovegetative syndromes were treated through psychotherapeutic measures and its adjuncts with the view of lessening their anxiety state and thereby minimize or eliminate the presenting symptoms.

Case 1. Hypertension. A man, age 44, with a family history of psychopathy, since fifteen years of age suffered from migraine. One sister suffered from hyperthyroidism. Within the last three or four years his periodic migraine attacks were replaced by a chronic headache of unknown etiology and he was referred for consultation.

The patient presented the typical picture of florid facies, tenseness, a tendency to stutter and various schizoid mannerisms. Neurologic examination was negative; psychiatric examination disclosed an introspection, anxious, quasi-paranoid individual with a history of enuresis, late marriage, family and economic difficulties. Blood pressure was 170/110. Diagnosis: Anxiety neurosis with essential hypertension and tension headache.

He was hospitalized Jan. 6, 1935, and was started on a sustained narcosis. His blood pressure dropped immediately (fig. 2). The anxiety of having to return home raised his blood pressure to 140/90 without relapse of headache. He was encouraged to relax and was given some sedative which again brought down his blood pressure. Because of his paranoid tendencies, the patient refused to cooperate with the follow-up psychotherapy and he has gradually relapsed into his old condition.

	Blood Pressure
Jan. 6, 1935	170/110
Narcosis started.	
Jan. 7	110/80
Jan. 8	118/85
Jan. 9	110/80
Jan. 10	120/80
Jan. 12	120/85
Jan. 14—Fever, interrupted narcosis	140/90
Jan. 15	135/90
Jan. 16	110/80
Jan. 17-21	130/90-118/80
Discharged home.	

Fig. 2. Blood pressure chart of case of essential hypertension during and following sustained narcosis.

Admitted to sanitarium January 6, 1935. Daily maintenance dose of 8-12 grains of barbiturates varied or supplemented with paraldehyde.

Comment. This case is presented to illustrate that in stubborn, severe, essential hypertension cases with threatened apoplexy, blindness or excessive strain on the heart, immediate relief may be obtained through the sustained narcosis. Then with continued psychotherapy, recreational and social reorientation, if our hypothesis be correct, these patients should respond in the same manner as do the other neurovegetative syndromes where such treatment does bring results.

In principle the observations made by Kelton[25] upon young athletes at the Washington Athletic Club at Seattle, seem to corroborate this hypothesis. Of thirty-two athletes, ranging in age from 16 to 30, examined just prior to a competitive event, about two-thirds of these physically able young men presented a pathologic blood pressure. Such of these cases as Kelton could reexamine after the event showed again a normal blood pressure. It is evident that the temporary anxiety and fear of competition was responsible for the hypertension. If a temporary competitive situation can produce such a symptom which disappears after the situation is met, it is axiomatic that a sustained anxiety can maintain such a symptom, and likewise if the sustained anxiety is resolved by assisting the patient in his adjustment, the symptom will likewise disappear.

This combined form of treatment needs further investigation; mild uncomplicated cases of hypertension have been successfully treated with psychotherapy alone (Hill[26]).

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[25] Kelton, W.: Personal Communication.

[26] Hill, L. B.: Psychoanalytic Observation on Essential Hypertension. Psychoanalyt. Rev., 22:60-64, Jan., 1935.

Case 2. Hyperthyroidism. A 50-year-old housewife in the spring of 1933 developed hyperthyroidism. B. m. r. +30 and +36, tachycardia, exophthalmus, tremor and "nervousness." She was operated upon June 24, 1933, and returned to her work. Soon afterwards she began to develop signs of relapse and a complicating schizophrenia with ideas of reference, delusions and hallucinations.

She was started on a psychotherapeutic regime and continued on this from October, 1933, until May, 1935. At the beginning of the treatment she suffered from menstrual disturbances with tension headaches, constipation, was hypersensitive to salads and certain fruits which always brought on gaseous attacks. The patient presented a very severe adjustment problem on the basis of her tremendous inferiority complex.

At the completion of the therapy she showed the following results: A gain of thirty-two pounds in weight, almost complete disappearance of the exophthalmus, sound sleep, loss of headache, constipation, food sensitivity and a better social and vocational adjustment. In her own words she says, "if I could have had this treatment thirty years ago, I think my life might have been different." At the end of the treatment she reported back to the referring physician who has informed the author that he hardly recognized her at first when she entered his office because of the marked change.

Comment. The psychogenesis and consequent use of phychotherapy in hyperthyroidism has been alluded to by other workers, notably Bram,[27] Mittelman[28] and Conrad.[29] It seems reasonable that a postoperative psychotherapeutic regime in selected cases of hyperthyroidism may some day be recommended.

Case 3. Mucous colitis. A 23-year-old university student was brought in by her brother because she refused to arise, would not do housework. The first interview disclosed that in addition to her behavior problem, she was suffering from mucous colitis for which she had been treated by vaccines, diets and other supportive measures.

General physical and neurologic examinations were negative. Subsequent interviews disclosed that while in the university she had majored in art, but felt that she had not been getting sufficient recognition and that she was not progressing as rapidly as she desired. At one of the dramatic clubs she had met up with a young man with whom she entered into sexual relations; later found that on many occasions he would under the guise of business pressure not come to see her, when in reality he was utilizing these free evenings to go out with other girls. She became very jealous, increasingly more introspective, lost confidence in herself and in her junior year dropped out of school. Her colonic symptoms began to manifest themselves, and later she developed obsessions and compulsions.

Psychotherapeutic rehabilitation consisted of pointing out to her her tendencies to withdraw from a difficult situation that she did not want to face, that her pride was hurt, that she set her goals too high and demanded more of life than she was willing to give. She was gradually started on activities about the home, later in the family business on Saturdays and finally she obtained an outside job along her artistic lines. As time went on she regained her confidence, her symptoms began to disappear and her mucous colitis cleared up without any form of symptomatic treatment. In the last contact her brother reported her as adjusting well in the home and outside.

Comment. The psychogenesis of mucous colitis is now accepted by most clinicians. In these cases symptomatic treatment is usually of little lasting value. These patients may suffer from this symptom a number of years because the maladjustment problem and the resultant emotional tension is being overlooked.

The question of constipation hardly warrants separate discussion, because it is so common in psychoneurotics that practically every case presents this symptom in varying degree. Here, again, treatment of the symptom is futile. It is advisable to point out to the patient the relation between his maladjustment and his constipation, to insist on regular toilet habits. In obstinate cases simple palliative measures may be indicated, but usually such patching up is of little consequence, until the patient's whole personality disharmony has been successfully readjusted.

Case 4. Dysmenorrhea and neurasthenia. The patient, a single girl, experienced difficulties for years at the time of her menstrual period which usually would be irregular, painful and accompanied by mood swings. For one year she had been subjected without any improvement to weekly injections of some hormone preparation. She finally developed a mild schizophrenic episode which brought her to a psychiatrist. At that time she presented mild ideas of reference, was depressed, lacked initiative and was overdependent on her mother.

In her general personality structure she was very immature and socially inadequate, lacked outside interests, was unable to obtain or hold a position. After a period of psychotherapeutic rehabilitation, the relation of her emotional makeup to her menstrual disturbances was gradually pointed out to her and she was encouraged to develop interpersonal adjustments and outside interests. The process was a slow one but gradually she succeeded at least partially and her menstrual symptoms gradually improved.

Comment. The association of menstrual to emotional disturbances is a very common finding to which every psychiatrist can attest. Horney[30] pointed this out and reported a series of practical illustrations, yet these cases go unrecognized in general practice. When the symptom becomes too disturbing, these patients are usually treated with various hormone injections which, outside of the suggestive element, are of no practical value, as pointed out by Allen[31] in his scholarly article.

Case 5. Tension headache. A middle aged, married housewife, mother of two children, for many years suffered from periodic attacks of intense headache. These were usually brought on by some upsetting emotional situation or the anxiety preceding some impending event, such as a dinner or theatre party.

Physical and neurologic examinations were negative, and subsequent interviews revealed that she had allowed herself to drift into a state of inactivity, was unable to delegate work to subordinates, lacked confidence in herself. This latter point is well illustrated by the following example. Whenever her laundress changed her wash day, it upset the patient considerably but yet she lacked the courage to speak to the employee, reprimand or discharge her. She also attempted outside activities. She took singing lessons but set a standard of performance which was impossible of immediate attainment and hence was constantly worrying about failure.

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[27] Bram, I.: Psychic Trauma in Pathogenesis of Exophthalmic Goiter. Endocrinology, 11:106-116, March-April, 1927.

[28] Mittelman, B.: Psychogenic Factors and Psychotherapy in Hyperthyreosis and Rapid Heart Imbalance. J. Nerv. & Ment. Dis., 77:465-488, May, 1933.

[29] Conrad, A.: Psychiatric Study of Hyperthyroid Patients. J. Nerv. & Ment. Dis., 79:505, May; 656, June, 1934.

[30] Horney, K.: Psychogenic Factors in Functional Female Disorders. Am. J. Obst. & Gynec., 25:694-704, May, 1933.

[31] Allen, E. B.: Menstrual Dysfunctions in Disorders of Personality; Their Nature and Treatment. Endocrinology, 19:255-268, May-June, 1935.

In the treatment she was encouraged to develop a more positive attitude towards life and try to reduce her oversentimentality, deal kindly but more firmly with subordinates, refrain from undertaking new ventures until she had mastered the immediate one to her satisfaction, and regard herself on the par with the average member of society to whom she always subordinated herself. After a series of analytic sittings, she was gradually more able to meet these various situations and her attacks of headaches became less. She continues to be active in church work, is progressing with her singing lessons and has taken a new lease on life. She stopped her treatment for lack of finances before the author felt he could release her as sufficiently rehabilitated to insure complete resolution of the tension headaches.

Comment. Severe tension headaches may also be concomitants of the neurovegetative syndromes, especially hypertension, gastrointestinal dysfunctions and as complications following hyperthyroidism. They are usually occipital in nature, may, however, be diffuse and usually their true etiology is overlooked. Such patients are sometimes subjected to grueling examinations, spinal puncture and encephlograms which usually aggravate the headache, a diagnostic sign well known in neuropsychiatric annals. In psychogenetic tension headaches spinal puncture usually aggravates the symptom, whereas headaches resulting from organic agents such as meningitides, general paresis and trauma, if anything, are relieved by spinal puncture or encephlograms. However, there is no need for a mistaken diagnosis on a clinical level, because the organic syndromes will on close examination show some positive neurologic signs and symptoms.

For lack of space several other types of cases had to be eliminated from the manuscript.

SUMMARY AND CONCLUSIONS

In this paper an attempt has been made to demonstrate that the neurovegetative syndromes collectively represent a psychobiologic complex of the neurotic type with a multiplicity of symptoms on many levels; that such a neurosis, contrary to general conception, has nothing to do with the "nerves" nor is it "mental," but represents a physiologic process. The motor that sets these physiologic hyper-, a- and dysfunctions in operation is the emotions, chiefly various anxiety and fear states. These anxiety and fear states are produced by friction, resulting from maladjustment on the part of an individual. Basically the maladjustment is the result of improper habit organization.

That such ailments are more prevalent in women is because of our double standard; the male sex, enjoying a greater latitude of vocational and professional freedom, may resolve their tension states through alcohol and on the sexual level. The female's avenues of outlets and opportunities are restricted, adding to her feeling of insecurity and anxiety. That these neurovegetative syndromes are on an increase, as has been pointed out by Stone,[32] Crile[33] and Cabot,[34] may be attributed to the increased stress of modern civilization. Bockus, Bang and Wilkinson[35] report mucous colitis as more common among private patients of the upper and middle classes as opposed to a clinic clientele. They failed to discover a single case among their colored clinic patients. Among these peoples the standard of living is lower, competition is at a lower ebb, resulting in a lessened need for adjustment and fewer neurovegetative syndromes. However, when such peoples of primitive ancestry are transplanted into our civilization, where they must learn our ways and means of social and vocational adaptation, the stress increases and in succeeding generations they will develop these diseases.

On the basis of this hypothesis, which seems to be borne out clinically, a treatment philosophy has been evolved which aims to attack the cause of the symptom. Heretofore, in medical practice these various syndrome states were considered as definite clinical entities and treatment was directed at the symptom. Occasionally this symptomatic treatment exerted a parallel suggestive effect and led to improvement. Later treatment philosophies represent an advancement in the method of attack on the symptoms, in that the treatment is applied at a point closer to the etiology and is exemplified by sympathectomies and glandectomies which aim to eradicate a link in the chain. The only drawback of these operations is that in all these syndrome states there exists overlapping of symptoms on many levels, and since the causative factor is still operative, new symptoms usually develop at other levels, thus invalidating the good results obtained by removing the one major presenting symptom, an observation to which every internist can attest.

It is self-evident that in patients where the symptoms represent a definite handicap, produce much suffering or endanger their lives, symptomatic treatment is essential. But even here such symptomatic treatment, whenever expedient, should be directed at the cause. With this purpose in mind, a procedure that quickly neutralizes the anxiety or fear state productive of the symptoms must be sought. On a practical level the sustained narcosis offers a specific method. This principle to a minor degree has been employed by various internists in the treatment of anginal and hypertensive states by placing the patient on a maintenance dose of sedatives or alcohol. The only one danger with which this procedure is fraught is the possible development of addictions.

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[32] Stone, C. T.: Mortality from Heart Disease; a Challenge. J. A. M. A., 103:151-154, July 21, 1934.

[33] Crile, G.: Diseases Peculiar to Civilized Man. Macmillan Co., New York, 1934.

[34] Cabot, R. C.: Address Delivered at King County Hospital, Seattle, Wash., June 21, 1935.

To obtain lasting results and to obviate the danger that the cure may not be worse than the symptom, psychotherapy in the last analysis offers the only sensible solution. By psychotherapy is to be understood the rehabilitation of the patient on all fronts and consists of no magical, sure shot methods. The success with which this procedure has been applied leaves little doubt that it offers great possibilities and in this direction we must look for a solution of the treatment of the neurovegetative syndromes.

EXPOSURE OF INFANTS TO TUBERCULOSIS AND THE TUBERCULIN TEST*

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SOURCE OF EXPOSURE

Since most infants are free from tuberculosis at the time of birth, the bacilli must reach their bodies subsequently in order to develop the disease. Tuberculosis, therefore, results from contact, direct or indirect, with persons or animals suffering from tuberculosis or acting as apparently healthy carriers. A carrier is one who has lesions discharging tubercle bacilli, but who suffers little or no impairment of health at the time.

PORTALS OF ENTRY

Tubercle bacilli reach the bodies of infants for the most part through the digestive and respiratory tracts. Formerly the belief was that bacilli were present in breast milk and that this was the source of infection. If the mammary glands have become tuberculous, which is rare, such is the case. The infant's hands, as well as other objects that reach his mouth, become contaminated; therefore, the digestive tract is a common portal of entry. While the infant is nursing, droplet infection may occur through the coughing, sneezing or even ordinary conversation of the tuberculous mother. Other intimate contacts, such as kissing, are even more likely to be the means of infection. The skin of the infant is quite resistant to tubercle bacilli and serves as a portal of entry only when abraided. An example is circumcision tuberculosis, of which a considerable number of cases have been reported. The eye may serve as a portal of entry with or without the development of tuberculous conjunctivitis.

INVASION

After tubercle bacilli have entered the bodies of infants, some may be eliminated through nasal secretions and the intestinal tract and, therefore, never invade the tissues. Few if any infants escape infection if exposure is continued over a length of time. When the bacilli do find lodgment, the natural defense mechanism of the body begins its work. The elements which enter into the defense are mainly leucocytes and connective tissue cells. The majority of infants soon bring the tubercle bacilli well under control. Observation on groups of infants have proved that the first invasion of tubercle bacilli, per se, rarely causes serious illness.

APPEARANCE OF SENSITIVENESS OF TISSUES

The invasion of the tissues by tubercle bacilli, even though the area is extremely small, perhaps microscopic in size, results in sensitiveness to tuberculoprotein. This is sometimes spoken of as allergy. The interval between the lodgment of tubercle bacilli and the appearance of sensitiveness varies from three to seven weeks. This period is known as the presensitive or anteallergic stage. After sensitiveness appears, it is very easily detected by the administration of tuberculin.

TUBERCULIN TESTS

The control of tuberculosis was advanced decisively by the Pirquet and Mantoux tests. In 1920 Bushnell said: "The role of the von Pirquet test in the epidemiology of tuberculosis is destined, it is believed, to become of increasing importance. Especial attention has, therefore, been paid to it in the hope that the Anglo-Saxon may be inspired by the example of the French and of the Germans to make use of it on a large scale, not only in the tropics but also at home." The tuberculin test, as it is applied to detect tuberculosis in children, is harmless. There are three main methods of administering it, each of which has been found of value.

INTRACUTANEOUS OR INTRADERMAL (MANTOUX) TEST

The intracutaneous or intradermal (Mantoux) test, because of its greater accuracy and its measure of sensitiveness is the method of choice. Either Old Tuberculin or Purified Protein Derivative may be used as the testing material. The latter is the result of much investigation by Long and Seibert, aided by Research Funds of the National Tuberculosis Association. Purified Protein Derivative can now be obtained from most all drug stores, and the directions for its dilution and administration accompany each package. It is probable that this preparation will become the principal testing material in this country.

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While we are in the transition stage, however, there are still many physicians employing Old Tuberculin. For this, the following technic and preparation of material is employed: The surface of the skin where the test is to be applied (the forearm is a convenient place) is cleansed with alcohol. An accurately graduated tuberculin syringe containing a solution of Old Tuberculin of such strength that 0.1 cc. contains 0.1 mg. of tuberculin is fitted with a 26-gauge one-half-inch needle which is placed almost parallel to the surface of the skin and gently inserted into the superficial layers. It must not pass beneath the skin. When the tip of the needle is introduced so the lumen is just out of sight, 0.1 cc. of the solution is slowly forced from the syringe into the skin, where it produces a wheal similar to that seen immediately after applying the Schick test. If there is no reaction in forty-eight to ninety-six hours, the same procedure is repeated but with a solution of such strength that 0.1 cc. contains 1.0 mg. of tuberculin. If there is no reaction in forty-eight hours, one may conclude the infant does not have a focus of tuberculosis at that time or if so is in the presensitive stage. Infants with tuberculous meningitis or miliary disease may also show no reaction to tuberculin because their tissues have been desensitized. When a positive reaction does occur, it appears as a definite, deep red, somewhat indurated or edematous area which varies in size from one-half to one inch in diameter, and is usually surrounded by a halo of hyperemia. This may be a small area or it may extend over the greater part of the forearm.

PREPARATION OF DILUTIONS

To obtain the proper dilution of tuberculin, 1 part of Old Tuberculin is added to 999 parts of filtered solution of C. P. physiologic saline (0.85 per cent). One-tenth cc. of this dilution contains 0.1 milligram of tuberculin, which may be used as the initial testing dose. If this test is negative, it may be repeated with a dilution consisting of 1 part of tuberculin to 99 parts of physiologic saline. One-tenth cc. of this dilution contains 1 milligram of tuberculin. For those who desire to use 0.01 milligram of tuberculin as the initial dose, the dilution may be prepared by adding 1 part of Koch's Old Tuberculin to 9,999 parts of physiologic saline. One-tenth cc. of this dilution contains 0.01 milligram of tuberculin.

These dilutions of tuberculin should be made fresh every two weeks. Some departments of health now prepare the various dilutions and always have them available for free distribution to physicians. Where this is not done, the physician will find it an advantage to write prescriptions for any amount desired of a dilution of 1:100, another of 1:1000, and another of 1:10,000. Pharmacists fill these prescriptions accurately and are glad to refill them every two weeks. The cost of such dilutions is very slight.

Many workers read the positive tuberculin reactions as one plus, when the area of induration is ten millimeters in diameter; two plus when it is ten to fifteen millimeters; and three plus when it is more than fifteen millimeters in diameter. A four plus reading indicates that necrosis has occurred at the site of the tuberculin injection. No doubt, tuberculin tests have been greatly overread, that is, small areas of hyperemia with no edema have been considered as positive reactions when in reality they are of no significance. For practical purposes, it is not necessary to read the degree of reaction, since this apparently is of no significance as far as the extent of disease is concerned. It suffices to report the test as positive or negative. However, no test should be reported positive unless an area of induration is present.

EPIDERMAL (PIRQUET) TEST

By the Pirquet method, we have no accurate measure of the amount of tuberculin introduced. Yet some persons object to the intracutaneous test on the ground that a hypodermic needle is used and "serum" is introduced into the child's body, so that a compromise may be wise. At such times, the epidermal (Pirquet) test may be applied as follows: An area on the surface of the skin (the forearm is most convenient) is cleansed with alcohol or ether and thoroughly dried with sterile cotton. A needle or a special scarifier which has been sterilized is used in making a scarification on the skin. Great care must be taken not to penetrate the skin too deeply. As only the outermost portion of the skin is removed, there should be no bleeding. One drop of undiluted Koch's Old Tuberculin is placed on the abraided surface. A light gauze dressing is applied to prevent the tuberculin from being removed. If the test is negative, there is no more redness present than would be produced by a slight scratch of a needle, and no induration of the skin. If, however, the test is positive by the end of forty-eight hours, one sees around the scarification where the tuberculin was applied a definite area of redness which may show even a purple hue in its center. There is also present an induration of the skin. The size of the red area varies from one-sixth of an inch to one inch or more in diameter. A modification which renders this test more accurate than the ordinary technic consists of applying tuberculin by the puncture method as one applies smallpox vaccine. Here again one may meet with objection to a needle by the family.

PERCUTANEOUS (MORO) TEST

For those who object to a blunt instrument or a needle, the percutaneous test may be employed. Its accuracy is as great if not greater than the epidermal test when the following technic described by Lovett is used. Over the sternum the skin is rubbed with ether in order to remove all oil from the pores. This is accomplished when hyperemia appears. To this area is applied a piece[1] of concentrated Old Tuberculin about the size of a pinhead which is rubbed into the skin with the fingers. If the test is positive, the reaction will be seen at the end of forty-eight hours. A mild reaction consists of papules scattered about the area, but there may be little or no reddening of the skin. A marked reaction consists of folliculitis with small vesicles or pustules and intense inflammation of the skin. Various tuberculin ointments are now available for this test.

TAPE TEST

Wolff cleanses the skin in the paravertebral region between the eighth and eleventh thoracic vertebrae with green soap and water. When dried the area is bathed with benzene. After drying again, a drop of tuberculin ointment the size of a pea is applied over the right side of the cleansed area and on the left side a drop of control ointment is used. Both drops are then covered with pieces of adhesive tape two inches square. This is tightly applied. In forty-eight hours the tape is soaked with benzene and removed. Ten minutes later the reaction is observed. When positive, the area over which the tuberculin ointment was applied shows papules, erythema, induration and pigmentation. He finds that this test is generally comparable in results with the intracutaneous test in a dilution of 1:100.

DELAYED REACTIONS AND NEGATIVE RESULTS

Delayed reactions have been reported by several workers. These reactions have been observed to appear as late as ten days after the administration of the test. Such delay, however, is not common. There are times when the cutaneous tuberculin tests with the usual doses of tuberculin are not reliable. In grave tuberculosis, the test may become negative. Sensitiveness to tuberculin is said to be definitely reduced by pregnancy, cachectic states and infections, such as pneumonia, typhoid fever, influenza, pertussis and therapeutic doses of tuberculin. Chadwick has found that measles has no effect upon the degree of reaction to tuberculin. Further studies on the effect of other acute diseases on the tuberculin reaction should be made. The sensitiveness of tuberculin if reduced probably is never entirely absent under these conditions. In nearly all cases of definite tuberculosis a reaction can be obtained by increasing the dose to 1.0 mg. or more.

SENSITIVENESS DUE TO DEAD OR AVIRULENT BACILLI

Transitory sensitiveness to tuberculin may be produced by introducing dead tubercle bacilli into the bodies of animals. Again, strains of tubercle bacilli, markedly attenuated in virulence, when introduced into the bodies of animals and children may produce sensitiveness to tuberculin. Usually, however, a positive tuberculin reaction in the infant is due to the presence of living tubercle bacilli which have reached the body through direct or indirect contact with a person or animal suffering from tuberculosis or acting as a carrier.

TYPES OF BACILLI

The types of tubercle bacilli causing sensitiveness cannot be determined with a high degree of accuracy by the tuberculin test. At one time, the belief was that infants infected with the bovine type of bacilli would react positively only when tuberculin prepared from that type is used. Such a high degree of specificity does not obtain. Tuberculin prepared from the human type of bacilli gives positive reactions when the infection is caused by the bovine or even the avian type. Indeed, the veterinarians, in testing cattle, use tuberculin made from the human type of bacilli.

MEANING OF POSITIVE TUBERCULIN REACTION

A positive tuberculin reaction indicates sensitiveness of the tissues to tuberculoprotein. So far as we know, this occurs in nature only in the presence of foci of living tubercle bacilli. These foci may be microscopic in size or sufficiently large to be located in the living body by our present methods of examination. Whether microscopic or macroscopic, each focus must be regarded as an area of disease either in the absence or presence of symptoms.

INCIDENCE OF POSITIVE REACTORS

The incidence of infection among infants varies with the exposure to tubercle bacilli. Among groups with no known contact, no reactions may be found, while in other groups as few as one or two per cent react positively to tuberculin, but among groups with known history of exposure this number increases to from 25 to 75 per cent. If the exposure continues, even 100 per cent of infants become positive reactors. When the mothers are tuberculous, the incidence of positive reactors among infants is usually higher than when the fathers are diseased. If the tuberculous member of the family is away from home during working hours, the incidence of reactors is lower than when the member remains at home. Thus, the more intimate and prolonged the contact, the greater the number who develop foci of tuberculosis and thus become positive reactors.

TUBERCULOUS INFANTS AS SOURCE OF EXPOSURE

An inquiry is often made as to whether there is danger in exposing healthy infants and children to tuberculous infants. Because such infants do not expectorate, they are thought to be safe associates. Yet their disease is due to tubercle bacilli, which if not recovered on laboratory examination may be present in abundance previous or subsequent to such examination. The recovery of tubercle bacilli from a tuberculous infant often requires special technic in obtaining and examining stomach contents, but when this is employed bacilli may be found in a considerable number. If the disease is only of the first infection type, the bacilli are eliminated only for a short time and usually by the intestinal tract; therefore, the danger to others is not great.

EXPOSURE MUST BE CONTINUED

When an infant has been found to react positively to the tuberculin test, one can be sure that there has been an exposure. Second only to the care of such infants is the physician's search for this source. It may be many miles away; more often it is among the infant's closest associates, the mother, the father or the grandparents. Because of the possibility of indirect exposure, the source will not always be found, but it will be located in such a high percentage of cases as to more than justify the search. When there are cases of open tuberculosis in the homes, methods of preventing the spread of tubercle bacilli to the bodies of infants and children in those homes should be instituted immediately.

PHYSICAL EXAMINATION OF THE CHEST*

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Early diagnosis of lesions of the lungs is in many ways as important as early diagnosis of cancer. If the diagnosis of tuberculosis is not made early, and adequate treatment introduced, the percentage of failures is extremely high. On the contrary, when treatment is instituted early, recovery is prompt and complete. Interpretation and correlation of physical findings are extremely important if a satisfactory diagnosis is to be made. Instruments of precision have helped tremendously in the diagnosis of chest lesions, but unfortunately every case cannot be examined by means of the roentgen ray, and sometimes even though roentgenograms are taken early, the diagnosis rests upon the physical examination. A fair estimate of pathology can be arrived at by a proper physical examination without the roentgenogram but this is rarely satisfactory without being accompanied by proper physical examination.

It is the purpose of this paper to put down a few of the points that have been of most benefit to the author over a period of years in a relatively large lung service, and in a brief way to stress some of the important points in the interpretation and findings that are conspicuously absent in the explication of chest findings by recent graduates.

INSPECTION

Inspection of a chest, in the author's opinion, constitutes the second best weapon we have in the routine examination of the chest, auscultation being the first. The patient must always be stripped to the waist in either a sitting or recumbent position, preferably sitting. Examination is never complete in the recumbent posture unless the patient is shifted from side to side and cognizance taken of the mattress springs and the sag scoliosis incident thereto. A hurried glance will elicit the pigmentations of various diseases such as syphilis, malarial intoxication, septic disorders, Addison's disease and herpes zoster. Chlorosis and pernicious anemia lend a greenish or lemon yellow tint to the skin, arthritis of long standing may give a shiny skin, and tuberculosis generally gives a dry and pale skin that is not infrequently complicated with pityriasis versicolor. In this connection acute fevers and trauma may be mentioned.

If the superficial veins of the thorax are distended and tortuous, there is some intrathoracic compression that interferes with the return flow of blood to the right side of the heart. This may be a mediastinal tumor, aortic aneurism or an extensively hypertrophied heart. Similarly, veins in the lower part of the chest may communicate with the caput medusae, lending evidence of portal stasis and inferior vena cava engorgement. There are certain deformities of the thorax that are immediately noticed. These are either occupational, or acquired as the result of disease. In children this may be rickets or upper respiratory obstruction such as from tonsils, adenoids, etc., while in adults deformities are caused by and are secondary to pathologic changes of the thoracic visera such as collapse or fibroid retraction of the lung, hypertrophic emphysema, aneurism of the thoracic aorta or excessive cardiac hypertrophy. These deformities of the thorax may be bilateral, unilateral or local, depending on the underlying cause.

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Retractions with inspiration are usually due to pleurisy and if bulging is present, it is probably due to an effusion. If the suprainfraclavicular fossae are not symmetrical and equal, there is liable to be disease under the sunken one. Atrophy of muscles over old lesions can also be determined by inspection. The position and nature of the heart's apex gives some information as to the existing state of the thoracic contents. If the apex is displaced, it is due either to hypertrophy or dilatation of the heart itself, or if displaced from pressure within the thorax, it is either pleurisy with effusion, which may be serous or purulent, a new growth, aneurism or fibroid retraction.

Just as we have deformities of the thorax as the result of disease, we also have variations in the movements of the thorax as the result of pathologic changes. These variations may be classified as unilateral, bilateral and local.

Unilateral variations of thoracic movements or lagging of one side of the thorax is of diagnostic import and is due to either tuberculosis, pleurisy with or without effusion, pneumonia, collapse, fibrosis, pulmonary syphilis or cancer. If the condition is of long standing, there will be compensatory emphysema for the crippled lung on the opposite side. Unilateral retractions are most frequently due to tuberculosis and old pleurisies. Lagging of a lung on either side should always lead to the suspicion of tuberculosis. It may be prominent in old lesions and almost imperceptible in new.

Bilateral variations of respiratory movements may be due either to chronic hypertrophic emphysema or the paroxysm of asthma. Decreased general expansion of the thorax in all diameters may result from atrophic emphysema and is identified with chests of elderly individuals. Circumscribed, local, increased variations of thoracic expansion may be encountered over the apices as the result of pleurisy with effusion or pleural or pleuropericardial adhesions. Likewise consolidations of the apices from phthisis result in increased localized movements of the respective lower lobe of the lung.

Pulsations of the chest wall are, of course, identified in some way with the cardiac impulse. A pulsation in the left anterior thorax between the second and sixth rib may be a pulsating pleurisy. Likewise a pulsation on the posterior chest wall below the angle of the scapula indicates a large pulmonary cavity filled with fluid and is more liable to be a lung abscess of the nontuberculous type, while a systolic retraction in this area means pleuropericardial adhesions. A systolic pulsation above the base of the heart points to aneurism of the aorta.

PALPATION

Systematic palpation reveals the degree of resistance, local tenderness, local areas of pulsation and fluctuation, and confirms inspection. Moreover, it reveals information as to the tension of the muscular wall and local edemas, also the condition of the ribs and intercostal spaces.

The pathologic variations in fremitus are the result of morbid changes in the bronchi, pleura, lungs or thoracic wall, and may be of increased intensity, diminished intensity, or the fremitus may be entirely abolished, depending on the amount of the pulmonary content involved. Fremitus is the palpable vibration elicited by the palms when the vocal chords are thrown into vibration, the sound waves being transmitted through the trachea, bronchi, bronchioles and pulmonary alveoli through the chest wall. In general, any consolidation where the bronchus is in contact with the consolidation will give increased fremitus, as in the solidification of pneumonia or the infiltration of phthisis, whereas the overstretching of the alveoli from emphysema or pleurisy with effusion will diminish or abolish fremitus respectively.

In atelectasis of the lung, fremitus is abolished in the area corresponding to the distribution of the plugged or compressed bronchus. The writer recently saw a case of collapse of the middle lobe of the right lung in a child of five years, where fremitus was entirely abolished in accordance with the anatomic division of the respective lobe. In this instance, fremitus and vocal resonance were of more value in the delineation of the abnormality and its ultimate diagnosis than the anteroposterior roentgen film of the chest.

PERCUSSION

Percussion of the lung is of value if carried out in a systematic manner. It is interesting in this connection to note that very little has been contributed to the art of percussion since the time of Auenbrugger and Corvisart. So sound were the observations of these investigators that few changes in principle have been made.

Leopold Auenbrugger of Austria, son of a wine merchant, when a boy discovered that he could tell the amount of wine in a cask by tapping it with his fingers, obtaining different sounds above and below the fluid levels. Later, when a man grown and having studied medicine, he applied these boyhood principles to the human chest, and thought that he could elicit certain abnormalities. He further experimented by injecting fluids in the chests of cadavers, thus proving that the sounds actually changed. Oddly enough the profession did not believe Auenbrugger's theories relative to his new discoveries, but he went right on making more correct and improved diagnoses as the result of his observations.

After over a half century, in 1808, Corvisart, physician to Napoleon, became interested in a publication of Auenbrugger about his method of examination, and thought well of it. He placed all of his effort, ability and standing behind this work, giving full credit to its discoverer, and to the medical profession a valuable diagnostic procedure, which has well stood the test of time.

The sounds elicited by percussion are:

1. Normal resonance, which serves as a standard of comparison and is the normal finding in a healthy chest.

2. Impaired resonance, which is a slight impairment of the normal resonance but not amounting to dullness. This is elicited in the early stages of tuberculosis, incomplete consolidation of pneumonia and moderate pleural thickening. It is the first step toward dullness.

3. Dullness, which indicates, as in the case of impaired resonance, a decrease in the air content of the part. It is characteristic of the consolidations of pneumonia, old tuberculous lesions, carcinomatous infiltration, pleural thickening, pulmonary syphilis and hemorrhagic infarction of the lung. Dullness in the left interscapular region is significant of an aneurism of the descending aorta or mediastinal tumor.

4. Flatness, which is a percussion note entirely devoid of resonance and is characteristic of dense consolidations. It is merely a further transition from the dullness. Serofibrinous pleurisy over a large area in the lower portion of the chest may give a triangular area of paravertebral dullness on the opposite side of the effusion at a level of the twelfth dorsal vertebra, known as Grocco's triangle. Empyema or serofibrinous pleurisy gives dullness or flatness, depending upon the quantity of fluid present, while pericarditis with effusion may obliterate Epstein's cardiohepatic triangle, giving flatness in this area.

5. Hyperresonance, which is characterized by abnormal clearness and is characteristic of emphysema.

6. Tympany, which represents the acme of hyperresonance and is best heard in the presence of pneumothorax, or over large superficial pulmonary excavations.

Various portions of the chest have been selected as a starting point to begin percussion, but as this procedure is a matter of comparison, the most satisfactory method seems to be to select an area in the midaxillary line in the sixth interspace, this being the area where the pulmonary tissue is closely apposed to the chest wall, and is attended by more intense, lower-pitched sound, and is of longer duration than percussion of the shoulder girdle, etc.

First percuss the front of the chest in a dial-like manner, and then with the patient relaxed, percuss the back, beginning at the tip of the scapula, progressing upward between the spine and the scapula to the apices. Next the base of the lungs should be percussed in expiration, and then deep inspiration. The amount of excursion should be three to six cm., though the amount of excursion is not as important as any deviation in the two sides. Where there is a deviation or marked lack of excursion, some pathology must be present; if above the diaphragm, fibrosis, thickened pleura, pleural effusion, pneumonia, lung abscess, tumor of lung, or empyema; if below the diaphragm, ascites, tumor, subphrenic abscess, hepatic or splenic enlargement must be kept in mind. Occasionally paresis of the diaphragm is encountered and is always associated with lack of excursion. The same procedure must be practiced in front and in the axilla. On the right side the liver must be kept in mind.

The special percussion signs such as Gerhardt's, Friedreich's, and Briemer's change of note are hard to elicit, and with the easy access to roentgenography have lost most of their popularity and usefulness. Wintrich's change of tone may be useful in some instances. It consists of a change of pitch during percussion, varying with the opening and closing of the mouth, and is based upon the physical fact that an open tube has a higher pitch than a closed on. It may be of value in determining a cavity or pneumothorax with patent bronchial communication. Gardiner's coin test is of value, being easy, reliable, and constant in cases of pneumothorax.

AUSCULTATION

To Laennec goes the credit for the discovery of the stethoscope and the correct correlation of lung pathology with his findings obtained by his new invention. While walking one day, he saw some children playing games. One child would scratch the end of a plank with a pin, while another would place his ear at the other end of the plank, the transmission of the sound that distance delighting the children. Laennec went back to his hospital, rolled a sheet of paper in a funnel shape, placed one end in his ear, the other on a patient's chest, and readily heard heart and breath sounds. This was probably the biggest single step in the advancement of medicine. From this day Laennec devoted himself to the study of auscultation and wrote fluently on the subject of tuberculosis, the disease from which he later died.

Auscultation yields the most information in physical diagnosis of chest conditions. Extraneous sounds which may tend to mislead, such as muscle sounds, bony crepitus, hair sounds and marginal sounds, should not be confused with true crepitant rales. Atelectatic rales disappear with a few deep inspirations.

Breath sounds are generated by the passage of air through the glottis, thus passing through a constriction into the larger trachea. Aerial whorls are set up, and their passage down the bronchial tree constitute the various sounds known as bronchial breathing, vesicular breathing, and bronchovesicular breathing, vesicular breathing being bronchial breathing reduced by its passage through the bronchi and bronchioles into the alveoli, and bronchovesicular breathing, as the name implies, being a combination of the two. All are normally present in various portions of the chest, but when heard out of their normal position become pathologic. Bronchial breathing is heard normally over the trachea, bronchovesicular over the second interspace to the right of the sternum, and vesicular in the fifth interspace in the axilla. The inspiratory and expiratory phase of bronchial breathing are equal, while in vesicular breathing inspiration is approximately three times as long as expiration.

Detection of bronchial breath sounds in an abnormal area of the chest points to consolidation of the lung. This consolidation is commonly pneumonia, but may be pulmonary compression, collapse, hemorrhagic infarction, cirrhosis of the lung, tumor, enlarged bronchial glands or a pulmonary cavity situated near the chest wall with patent bronchial communication. In the latter instance it may be termed cavernous.

Bronchovesicular breathing of an abnormal nature follows the same general rules of bronchial breathing except that all of the alveoli in the pathologic area are not collapsed and some of the vesicular murmur is heard in conjunction with an element of the bronchial type.

The intensity of the normal vesicular murmur may be diminished or abolished in severe pleurisy or pleurodynia, closed pneumothorax or occlusion of a main bronchus.

The transmission of voice varies from normal vocal resonance to diminished or absent, or to increased vocal resonance. Diminished or absent vocal resonance is significant of hypertrophic emphysema, compensatory emphysema, pleural thickening, moderate pleural effusion and bronchial stenosis. A pulmonary cavity filled with fluid causes absent vocal resonance. In pleural effusion the usual finding is abolition of vocal resonance, with exaggeration of the resonance above the limit of the fluid. It is possible to get resonance in the presence of fluid, if there are pleural adhesions traversing the fluid effusion.

Whispering pectoriloquy, which is the highest refinement of vocal resonance, is probably the best evidence we have of pulmonary cavity with patent bronchial communication or of pneumothorax with bronchial fistula. This occurs only when the cavity is empty and fairly close to the chest wall. Whispering pectoriloquy is only the articulate whisper, and one must not be mislead by mistaking bronchophony for pectoriloquy. Bronchophony is an increase in vocal resonance resulting in audible voice sounds, but in contrast to pectoriloquy in that the sounds are inarticulate. Pectoriloquy is the transmission of the articulate voice, whispering pectoriloquy the transmission of the articulate whisper.

Pectoriloquy is the next ascending grade of vocal resonance from bronchophony, and is significant of a very dense consolidation near a main bronchus, a cavity or pneumothorax with patent bronchial communication, while bronchophony is indicative of a consolidation less dense, such as incomplete consolidation of pneumonia.

De Espine's sign has been of some value to the author in the elicitation of enlarged tracheobronchial glands in children. It is the transmission of the articulate whisper below the seventh cervical vertebra, whereas normally the whisper does not extend below this level. This sign has in many instances been inconstant.

Posttussic suction, which is the inrush of air into a cavity during inspiration following exhalation and cough, is described as a whistling suction sound, and when heard is pathognomonic of a pulmonary excavation.

Rales mean acute inflammation and their detection are of great importance. They are adventitious sounds which are generated in the larynx, trachea, bronchi, bronchioles or pulmonary alveoli as a result of interference with the free ingress and egress of air during respiration. The lesion may consist of diminution of the lumen of the air passages from outward compression or thickening of the mucous membrane from within. It may be an obstacle within the bronchial tubes or a sticking together of the terminal bronchioles and alveoli by a fibrinous exudate or tenacious secretion.

Rales are classified as dry and moist. The dry rales are known as sonorous and sibilant, this division being made from acoustic influence. The sonorous are low-pitched and from the larger bronchi, while the sibilant are high-pitched and from the smaller bronchi and bronchioles. Both are brought about by varying degrees of stenosis and from inflammatory process in their respective lumina. They are more frequently audible during inspiration than expiration and are frequently heard during inspiration only. These dry rales are quite common in old tuberculous lesions that are fairly dry, and are the typical findings in true asthma and postinfluenzal infections of the respiratory type.

Moist rales are generated by the passage of air through serum, blood, pus or mucus in the larger bronchi, or by separation of the alveoli and terminal bronchioles that have been stuck together by tenacious secretion. They are classified as crepitant, subcrepitant, mucous, and gurgling, or fine, medium and coarse.

A crepitant rale occurs at the termination of inspiration and is produced by the separation of the alveoli that have been stuck together by some secretion. The quality of this rale can be imitated by rolling a lock of hair between the thumb and forefinger. These rales occur in showers and persist. They bear the chief place in the findings of the early tubercle; however, they frequently are not heard on ordinary inspiration. In a large percentage of the cases they are brought out by having the patient exhale and cough. Crepitant rales usually are first located at one or the other apex, either in the front or in the back, in the superspinous or supraclavicular fossa. These rales, if persistent and at an apex, should be considered tuberculous until proven otherwise. Extension occurs downward below the clavicle and either inward or outward in a crescentic margin along the sternal border, or outward into the axilla.

The upper portion of the lower lobes behind and the interlobar fissures should receive very careful consideration, as it is important for the examiner to know whether disease has progressed downward into the upper portion of the lower lobe. A fair guide to the interlobar fissure may be obtained by having the patient grasp the opposite shoulder; thus the vertebral border of the scapula marks the dividing line between the upper and lower lobe. When these fine rales are elicited by having the patient exhale and cough, they have been termed "latent" and stressed by some observers. They may be detected in the early stages of fibrinous pneumonia and are also present at the pulmonary bases in the presence of alveolar inflammation, infarction and capillary bronchitis. They are, however, frequently confused with the pleural friction rub and benign marginal sounds.

The medium or subcrepitant rales come from the bronchioles; therefore, they are both inspiratory and expiratory. They are produced by the separation of walls of the terminal bronchioles which have become adherent by some exudate or tenacious secretion. These rales are heard during the period of resolution in fibrinous pneumonia, and are present in catarrhal bronchitis, pulmonary edema and hemorrhagic infarction.

The mucous rale is a large, coarse rale that is present during both inspiration and expiration. It is confined to the larger bronchi and pulmonary cavities, and intensity depends upon the quantity of fluid present in the bronchial tubes. Mucous rales are most frequently encountered in chronic ulcerative phthisis, are often present in catarrhal bronchitis, and are also heard after the paroxysm of bronchial asthma.

The gurgling rale is a coarse, bubbling rale more pronounced than the mucous rale which has just been described. It is characteristic of cavitation with patent bronchial communications.

Bruns[1] has called attention to a parenchymal rale which is brought about by the reexpansion of partially collapsed alveoli as the result of nearby tuberculous infiltration. This rale is somewhat coarser than the ordinary crepitant rale. The explanation of a parenchymal rale is satisfactory, but the name is somewhat misleading, as the average observer believes that pathologic rales involving the alveoli are, or should be, considered parenchymal rales.

Important points to remember in the examination of chest lesions:

1. Fine crepitant rales at the apex of either lung should be considered tuberculous until proven otherwise.
2. Crepitant rales at the base or lower portion of the lung should be considered nontuberculous until proven otherwise.
3. Whispering pectoriloquy when elicited is a good sign of cavitation.
4. Gurgling rales in a localized area of the chest are good evidence of pulmonary excavations.
5. Cavities at the base of a lung are liable to be nontuberculous, whereas cavities in the upper portion of a lung are most frequently tuberculous.
6. Idiopathic pleurisy with effusion is nearly always tuberculous, and dry pleurisy without cause should be looked upon with suspicion.

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[1] Bruns, E. H.: Parenchymal Rales in Early Tuberculosis. J. A. M. A., Sept. 25, 1925.

Contributory Causes of Coronary Thrombosis. Cadis Phipps, Boston (Journal A.M.A., March 7, 1936), presents figures from which he believes it seems possible to foretell attacks of coronary thrombosis in the majority of instances. There is not only the obvious group of patients suffering from angina pectoris or having had a previous occlusion of the coronary artery, comprising about 40 per cent of the total number of cases, but also other signs and symptoms, such as paroxysmal nocturnal dyspnea, which are almost pathognomonic, especially if in combination, and he believes that his estimate of only 17 per cent of the cases giving no history of suggestive signs or symptoms is modest. It is the precipitating causes, however, which he wishes to stress, although he realizes that there are probably many omissions, such as thyroid dyscrasia or sensitivity to tobacco, which perhaps should be considered. The possible untoward effect of digitalis needs no comment: his observations are, in a way, merely statistical corroboration of work previously done by Gilbert and Fenn and others. Recently there was an excellent discussion by Master on the value of a low calory diet in coronary thrombosis.

COMMON FORMS OF HEART DISEASE

THEIR RECOGNITION AND TREATMENT

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(*Concluded*)

The Syphilitic Type. The discovery of an aortic valve incompetence in a man forty or forty-five years of age, therefore, calls for an etiologic diagnosis as to whether it is the result of a rheumatic condition or of syphilis, and here again we are helped appreciably by the history. If the patient gives a history of cardiac disability over a period of years, following one or more attacks of acute rheumatic fever, the regurgitation is then in all probability due to rheumatic fever and not to syphilis. The syphilitic type of aortic regurgitation does not manifest its presence until later in life and, having done so, it then runs a much more rapid course. The patient with rheumatic aortic regurgitation is spared a great many of the unpleasant symptoms which are characteristic of rheumatic mitral disease, and many of the unpleasant symptoms which are characteristic of syphilitic aortic regurgitation.

The difference in symptomatology and prognosis of syphilitic and rheumatic regurgitation is largely due to the difference in the type of pathology. In rheumatic regurgitation the pathology is confined almost exclusively to the valve, whereas in syphilitic regurgitation the pathology involves the aorta itself, the opening of the coronary arteries and the aortic ring, as well as producing some deformity of the valves. It is this more extensive distribution of the pathology in syphilitic aortic regurgitation which determines its more rapid course and the dramatic accidents which occur in this disease. In both types the regurgitation results in an enlargement of the left ventricle, followed by hypertrophy, so that on percussion we find the heart enlarged downward and to the left. This lesion is productive of the largest hearts known, and the term cor bovinum is thus well merited.

The contraction of the hypertrophied left ventricle results in the evacuation of its contents with such force that the peripheral arteries, particularly the carotids may be seen to pulsate with each ventricular systole. Unfortunately, the incompetent valve permits blood to fall back into the ventricular cavity during diastole, so that the arteries which were seen to dilate as a result of ventricular systole are seen to collapse just as promptly with the onset of ventricular diastole. Under the finger the radial artery is felt to expand very rapidly and fall away just as rapidly, giving rise to the typical water-hammer or Corrigan pulse. The use of the sphygmomanometer confirms the sensory impressions, and it is usual to find a systolic pressure of 140 to 180, with a very low diastolic pressure, sometimes no diastolic pressure whatever.

The rush of blood back and forth through the aortic orifice produces a murmur which in simple cases is limited to diastole, but in the extreme cases has a to-and-fro sound. In other words, vibrations are set up during systole of the ventricle, and other vibrations are set up by the rush of blood back into the ventricle during diastole. The presence of hopping carotid arteries, cardiac hypertrophy, and a diastolic or to-and-fro murmur over the aortic valve area, with a blood pressure showing marked difference between the systolic and diastolic reading, is sufficient evidence to warrant a diagnosis of aortic regurgitation. It should be remembered, however, that an arteriovenous aneurysm, even when as far from the heart as the popliteal space, may give rise to almost identical signs. In some cases of aortic regurgitation there is a systolic mitral murmur, which, however, does not always imply the existence of mitral valvulitis, and in some there is a sharp presystolic rumble known as the Austin Flint murmur.

In my experience the failure of the ventricular muscle in rheumatic aortic regurgitation has had a much more serious significance than in rheumatic mitral disease. Ordinarily, in aortic disease the ventricular muscle becomes hypertrophied in early youth and is able to carry the burden of regurgitation without much difficulty. But when it finally does fail the failure is usually complete and permanent.

The patient with a well compensated rheumatic aortic regurgitation requires no treatment other than direction in regard to his physical and emotional activity, but this is decidedly not the case when one is dealing with an aortic lesion, the result of syphilis. Here treatment can be of distinct benefit in arresting the progress of the disease. Without treatment, one can watch a syphilitic regurgitation progress from a stage with a scarcely audible diastolic murmur and little if any enlargement, to a stage of complete regurgitation. With treatment, one certainly cannot expect to establish a cure, but one may hope to retard the progress of the disease. It is most important, however, that the treatment shall not be too strenuous.

No greater mistake can be made than to start these patients on full doses of arsenicals. I have seen serious results follow the use of salvarsan when given to patients with syphilitic aortic disease who have not had preliminary treatment with mercury, bismuth and iodides. Here one should make haste slowly, making up for the minimal amount of arsenic used by the frequency of administration and by the use of other antisyphilitic remedies. Syphilitic disease of the heart itself is almost exclusively confined to the aorta, but, of course, syphilitic disease of the circulatory system may involve not only the aorta but the blood vessels of any part of the body. The discussion of this phase of syphilitic disease, however, is outside the bounds of this discussion.

The Acute and Subacute Bacterial Types. The third important form of infection includes the group described as acute endocarditis and subacute endocarditis. The distinction between the two is a rather artificial one except for two points; one is that acute endocarditis may occur in previously healthy valves, and the other is that it runs a very brief course. As a matter of fact, the course may be so short that the existence of vegetations on the mitral and aortic valves may not be suspected because of the overwhelming intoxication incident to general sepsis. This, however, is not the case in the type of infection described as subacute endocarditis or endocarditis lenta, which is usually grafted on valves previously deformed either as the result of an antecedent rheumatic infection or as the result of a congenital deformity. Here the onset is insidious, the patient complains of malaise and fatigue, the temperature is a little elevated each day, there are chills and sweats and a steadily progressive anemia; now and then the patient may complain of pain in the left side or in the lumbar region as the result of the lodgment of emboli in the spleen or in the kidney; or there may be nodules in the soft parts of the fingers or in the soft tissues between the fingers, which come suddenly, are bluish-white in color, and disappear quickly within from twenty-four to forty-eight hours; or there may be small capillary hemorrhages into the conjunctiva, various parts of the skin or into the nail beds, indicating a diminished capillary resistance and in some instances perhaps the lodgment of very small emboli.

In patients who suffer from endocarditis lenta repeated microscopic examination of the urine will in every case show hematuria which varies in intensity from day to day, at times completely disappearing. Gross hematuria does not occur. One has to search with care for the red cells, and even when sought for they may be missed, if the urine is not sufficiently concentrated to prevent hemolysis. The diagnosis of endocarditis lenta from the cardiac findings alone is particularly difficult because of the preexistence of valvular deformities. It is for this reason that the other clinical signs and particularly the finding of streptococcus viridans in the blood stream is of such great diagnostic value. It should be remembered, however, that a positive streptococcus viridans blood culture is not sufficient evidence by itself to permit a diagnosis of subacute endocarditis. There is no doubt whatever but that the streptococcus viridans may be obtained from the blood of many patients suffering from nothing more serious than a slight sore throat. The distinction between this finding and that which occurs in endocarditis lenta, however, is that in the latter disease one finds a great number of colonies per cubic centimeter of blood, whereas where the blood stream invasion is merely an incident, only a few colonies are found. Further, in endocarditis lenta repeated cultures are always positive.

This disease runs a course which may vary from four weeks to six months or longer. I do not know of any treatment which could be considered curative. The administration of antiseptics or of sera and repeated transfusions, have all proved in my hands to be futile procedures. At one time it was thought that the immunization of healthy donors and the transfusion of their blood would be helpful in overcoming the infection, but this has not proved to be the case. If one will titrate the blood of a patient who has had endocarditis for a number of weeks for its antibody content, one is quite likely to find agglutins present in dilutions of 1 to 600 and higher, whereas normal blood or the blood of immunized donors rarely has such a titer. Transfusion, therefore, is of questionable value from the immunologic standpoint.

The injection of streptococcus viridans into healthy dogs does not produce a subacute bacterial endocarditis, but if an instrument be passed down the carotid artery into the aorta, and through the aortic orifice for the purpose of damaging the heart valves, a subacute endocarditis, clinically identical with that which occurs in human beings, may be produced by a subsequent intravenous injection of streptococcus viridans. Ralph A. Kinsella of St. Louis has been working on this problem for a number of years. Having produced a typical subacute endocarditis, he was able to save a number of animals by giving intravenous injections of a mercurial. This very encouraging result induced him to attempt the use of the drug in human cases of endocarditis, but without obtaining a single good result in a series of ten cases.

At the present time my associate, J. R. Miller, and I are engaged in a piece of work which will require perhaps twenty or twenty-five years for its completion. Since we are unable to destroy the streptococcus in its habitat in the vegetations in the heart valve, and since this disease occurs almost without exception in patients who previously have had rheumatic heart disease, it has seemed to us that the problem must be attacked from the standpoint of prevention rather than of cure. To this end, every patient who has a known rheumatic valvular lesion and who can be induced to submit, is given intravenous injections of killed streptococcus viridans cultures. Our purpose is to keep the resistance of these patients as high as possible, so that in the event of an accidental invasion of the blood stream by streptococcus viridans, the specific type of antibodies will be present in high concentration or will be called into existence promptly before the organism has had the opportunity to intrench itself on the heart valves, where it becomes secure from attack by chemicals and antibodies. It will, of course, require a great many years to determine the efficacy of this plan.

It may not be amiss at this time to place some emphasis on the great importance of various types of infection in producing cardiac disability. It is my sincere conviction that much could be done to reduce the frequency of cardiac muscle failure, if we would insist on a longer period of convalescence for patients who have recently suffered from pharyngeal, tonsillar and respiratory tract infections. It is our custom to keep all such patients in bed for at least four days following the return of a normal temperature. We believe, too, that much can be done to diminish the prevalence of the infective type of heart disease by treating streptococcus viridans infections of the nasopharynx. This type of infection is extremely common; it is characterized by a dusky redness of the nasopharynx, edema of the uvula, elevation of lymphoid follicles on the pharyngeal wall, and a coating of transparent tenacious mucus, the presence of which may not be recognized unless an applicator is used to remove it. The importance of this type of subacute pharyngitis is not recognized and is often minimized and passed off under the meaningless title of chronic catarrh.

In the last few years I have seen hundreds of cases of illness with variable symptoms, including fatigue, headache, vertigo, arthritis, myalgia, backache, bursitis, focal glomerulonephritis, all relieved promptly by local treatment of the nasopharynx. Curiously enough many laryngologists consider this type of throat infection to be so common as to be practically normal. Our clinical experience, however, convinces us that, even though the symptoms in a given case may not be disabling, nevertheless the presence of a subacute streptococcic infection of the nasopharynx carries with it a very distinct hazard to the life of persons who previously have had a rheumatic infection of the heart valves.

THE THYROID HEART

The principal cardiac disease caused by intoxication is that which occurs as a result of disease of the thyroid gland. Symptoms referable to disturbed cardiac function may occur as the result either of hypothyroidism or myxedema, or as a result of thyrotoxicosis. Fortunately myxedema is not a particularly common disease in this country, but the possibility of its occurrence should be considered in cases of cardiac decompensation which are not typically rheumatic, syphilitic or sclerotic in origin. Its presence should be suspected, particularly when there are other symptoms of myxedema such as falling of the hair of the scalp, eyebrows and eyelashes, coldness of the extremities, lack of sweating, somnolence, intellectual retardation and increasing weight. The administration of thyroid substance to patients suffering from myxedematous heart results in an almost miraculous recovery. The treatment of cardiac symptoms due to thyrotoxicosis is not so simple. Here the symptoms include attacks of palpitation, breathlessness, perhaps mild precordial pain, sinus tachycardia, and in severe or long-standing cases of thyrotoxicosis, auricular fibrillation. Thyrotoxicosis stands next to mitral stenosis in the frequency with which fibrillation occurs. The occurrence of these symptoms in association with tremor, loss of weight, increased sweating, nervousness, insomnia, thyroid enlargement, and ocular signs, of course makes the diagnosis comparatively simple.

It should not be forgotten, however, that there is a form of thyrotoxicosis which may simulate cancer of the stomach, organic heart disease and various other diseases, because of the absence of what we have come to regard as the characteristic findings of thyrotoxicosis. It is in such cases that the determination of the metabolic rate is particularly helpful. Too, one must not overlook the fact that other diseases may simulate very closely a thyrotoxicosis. Low grade infections, particularly pulmonary tuberculosis, often cause great difficulty in differentiating them from thyroid disease. Some of the psychoneuroses may also simulate thyrotoxicosis very closely, even to the point of having a metabolic rate elevated as much as 37 per cent above normal.

A young woman presented herself because of insomnia, nervousness and loss of weight. She had a tremor, lid lag, widening of the palpebral aperture, increased sweating, tachycardia, and a metabolic rate of plus 37. She was admitted to the hospital as a thyrotoxicosis suspect, but within forty-eight hours the tachycardia had disappeared, the tremulousness and general restless nervousness had disappeared, and the metabolic rate was now normal. The startling change was the result of satisfactory mental adjustments. A high basal metabolic rate, therefore, does not always mean the existence of thyrotoxicosis, nor does a normal or low rate definitely exclude it. Some men advise that thyrotoxic patients with gross congestive heart failure or permanent auricular fibrillation be digitalized as well as iodinized before operation.

The use of digitalis in the treatment of cardiac symptoms of thyrotoxicosis in my experience has been extremely disappointing. I have yet to see a patient with a frank congestive failure or fibrillation, the result of an active thyrotoxicosis, who was appreciably benefited by digitalis. In my experience the only satisfactory treatment of the cardiac complications is to stop the intoxication at the earliest possible moment by iodinization and subtotal thyroidectomy. Until this is done digitalis does not accomplish much. When it is done, digitalis is seldom necessary. The effect of thyroid intoxication on the heart muscle is fortunately in most instances a reparable process, and often times in less than a week after a subtotal thyroidectomy the heart rate will have slowed and an auricular fibrillation of months duration will have been converted into a normal sinus mechanism without the use of drug therapy directed toward the heart.

CORONARY DISEASE

An increasing amount of interest is being shown in that form of cardiac disease which is directly the result of physical changes in the aorta and coronary arteries. With a prolongation of life due to the control of many infectious diseases, the incidence of coronary disease is increasing. The recognition of various symptoms of coronary disease is perhaps increasing at an even faster rate. This is largely the result of the impetus given to the study of coronary disease by the articles of James B. Herrick of Chicago. It is not difficult for us to recognize cases of coronary disease which start suddenly with severe pain in the precordium, radiating to the left shoulder and down the left arm. This is the typical distribution of pain and it has been emphasized so much that we are prone to forget that coronary disease does not always manifest itself either at its inception or during its course by agonizing pain.

In many instances the first symptoms noted are shortness of breath on effort, or attacks of paroxysmal dyspnea, with nothing more than a sensation of heaviness or of mild constriction beneath the sternum. In other cases, angina of effort may occur persistently over a period of years in the absence of other clinical signs of cardiac disease, and so has given rise to a rather general impression that angina of effort and coronary disease are two separate and distinct entities. This is by no means true. Both are the result of interference with the circulation of the blood through the coronary arteries. Although the pathogenesis of symptoms in the two conditions may be different, the physiologic effect is the same. Nor should it be forgotten that substernal pain radiating into the arms is not necessarily due to coronary disease.

A male patient of 53, on whom a diagnosis of coronary disease had been made elsewhere because of the character of the distribution of pain, on fluroscopic examination of the chest was found to have a tumor of the mediastinum which proved to be an intrathoracic goiter. The clue to the diagnosis was a clinical finding which does not occur in coronary disease. This finding consisted of dilatation and tortuosity of the veins of the arms and upper chest, and visible engorgement of the jugular veins when the patient assumed a supine position. In the absence of distention of the veins of the abdomen and lower extremities, this phenomenon can be caused by only one thing, namely, pressure on the superior vena cava, and this is usually the result of tumors of the lung, particularly primary carcinoma of the bronchus, or of tumors arising from the mediastinal structures, including lymphomas or of intrathoracic goiters. Any one of these conditions may cause substernal pain.

One of the greatest responsibilities a physician ever has to discharge is in making differential diagnosis between upper abdominal disease and coronary disease. It is now well known that gallbladder disease, pancreatitis and peptic ulcer may be indistinguishable from coronary disease by clinical means. In many institutions electrocardiographic study is a prerequisite for major surgery on all middle aged and elderly patients. Just as pathology in the upper abdomen may simulate coronary disease, so coronary disease may simulate upper abdominal disease. The electrocardiogram is particularly helpful in differentiating these two puzzling conditions. However, I have had patients with known coronary disease who subsequently developed common duct obstruction, and in such cases the electrocardiogram is not likely to give additional help, and the differential diagnosis will have to be made by other means. Coronary disease, therefore, may be mistaken for abdominal disease; abdominal disease may be mistaken for coronary disease; or both may exist in the same patient.

The changes in the electrocardiogram which may develop as the result of coronary disease are many, but perhaps the most constant and characteristic change which occurs in this disease, even when only small branches of a coronary artery are obstructed, is a high take-off of the T-wave and a negative deflection of the T-wave in Lead I. This change, occurring in a person known previously to have had a normal electrocardiogram, is very significant. Often times a patient in whom coronary disease is suspected may show a perfectly normal graph, if the examination is made within a few hours after the obstruction has occurred. In these instances repeated electrocardiograms will often show the development of a so-called Pardee curve and negativity of the T-wave, or a large Q-wave in Lead III, bundle branch block and slurring of the QRS complex. Such progressive changes are almost incontrovertible evidence of the existence of a coronary block. A single normal electrocardiogram, therefore, is not conclusive evidence of the absence of coronary disease, several tracings at intervals being much more informative. In a number of cases I have been able to observe both the development of and the disappearance of these electrocardiographic abnormalities in coronary disease, and in a few instances the restoration to a normal type of curve has been so complete that no electrocardiographer would even suspect that the patient had ever had a vascular lesion of the heart.

Coronary disease is not quite the serious thing which it was considered to be ten or fifteen years ago. At least 50 per cent of all patients who suffer from a coronary attack recover, to die either of subsequent attacks or of some intercurrent illness. As in acute appendicitis, which may proceed to recovery or to perforation within a few hours, so in coronary obstruction there is no way by which the physician can determine what the outcome will be with the onset of symptoms. The only safe attitude is to regard every patient with symptoms of coronary disease as having a condition which may prove instantly fatal at any time within a period of six weeks. Such patients should be put at complete rest at once. To accomplish this purpose it is usually necessary to give morphine in ample amounts, and it should be remembered that ½ grain of morphine, which might kill a given patient who is not suffering from pain, often will be only enough to produce relaxation in a patient who is suffering from agonizing precordial distress. Patients, particularly aggressive business men, who experience their first paroxysm of pain due to coronary block, are often reluctant to follow the physician's instructions of six weeks in bed. In such instances, I regard it as perfectly justifiable to keep the patient more or less constantly under the influence of hypnotics and narcotics. This is the first and most important step in the treatment of this condition.

Cardiologists vary somewhat in their attitude with regard to the administration of digitalis in this disease. My own custom is to give digitalis only when the coronary accident is followed by symptoms of congestive failure. At the present time it is the custom to give all patients, who have any degree of obstruction of the coronary circulation, some one of the xanthine derivatives, such as the salts of theophyllin or theobromine. It is also a common custom to combine one of the xanthine derivatives with phenobarbital, thus securing the vasodilator effect of the xanthine drug and the sedative effect of the barbituric acid derivative. These patients should be given four or five small meals instead of the conventional three. Coffee and tea are not necessarily banned, nor need one forbid the use of moderate quantities of any of the spiritous liquors. Tobacco, however, is generally regarded as being injurious to people with vascular lesions either in the extremities or in the heart, and, therefore, should be prohibited.

Dyspnea is often one of the most distressing and earliest signs of an acute coronary accident. The administration of oxygen in an oxygen chamber, an oxygen tent, or when these facilities are not available, by means of perforated catheters introduced through the nose into the pharynx, is usually followed by a marked relief of respiratory distress. Patients with coronary occlusion may thus be kept comfortable for long periods of time. One patient of mine was kept in an oxygen tent for a period of fourteen days in perfect comfort, but with recurrence of the dyspnea when the concentration of oxygen was reduced or on attempting to remove him from the tent. Oxygen therapy is also helpful in the treatment of congestive heart failure, despite the fact that the arterial blood may not show a deficit in its oxygen content.

THE HYPERTENSIVE HEART

Idiopathic hypertension appears, in almost all cases, to be dependent on an inherited predisposition. The only constant cardiac sign of hypertension is cardiac enlargement to the left. I have little to say about the hypertensive heart, because while I know that it is the result of increased arterial resistance to the flow of blood, I do not know the cause of this increase. Ordinarily the hypertension comes on gradually with the result that the heart is able to adjust itself to the increasing burden by an increase in the size of the chambers and in the thickness of its walls. During this stage there is no indication for therapy directed toward the heart itself. The therapy should be directed toward the reduction of blood pressure by physiologic means. I confess to being an infidel with regard to the numerous drugs which have been advocated for the treatment of hypertension.

There comes a time in the history of every case of hypertension when some one of the three mechanisms begins to fail; either the heart muscle fails and then the symptoms of congestive heart failure develop, or else there is rupture of a vessel in the heart itself, the brain, the lungs or elsewhere; or the gradually increasing sclerosis results in a failure of renal function. When hypertensive cases develop congestive heart failure, the treatment is the same as that for congestive heart failure on any other basis. Hypertension, the result of an increased pressure in the systemic circulation, has a parallel in the condition known as cor pulmonal which is associated with hypertension in the pulmonary circulation. Here the enlargement of the heart is due to changes in the size of the right ventricle, which enlarges as a compensatory measure in an attempt to overcome the increased resistance to the flow of blood through the pulmonary capillaries. The increased resistance in the pulmonary capillaries is usually the result of extensive chronic pulmonary fibrosis. It leads to severe cyanosis, clubbing of the fingers, hepatic enlargement; in other words, all the findings associated with increased venous pressure the result of mitral disease, except for the fact that there is no pulmonary engorgement.

THE IRREGULAR HEART

It is quite impossible in the time allotted to cover the very interesting group of conditions which are characterized by disturbances in rate and rhythm, nor is it possible to enter into a discussion of the functional heart which was described under a variety of titles during the war, in some places as neurocirculatory asthenia, in others as disordered action of the heart, and in others as effort syndrome.

I wish to conclude by reference to a few general maxims which should be remembered in the management of cases of cardiac disease. At the present time great emphasis is placed on the various types of exercise tests as a means by which the functional capacity of the heart may be determined. In my experience all these exercise tests are likely to be misleading. The best test of cardiac efficiency is the ability of the patient to perform the tasks to which he is most accustomed. To ask an elderly person, who never climbs a flight of stairs, to hop thirty times on one foot, does not seem to be a rational test of that person's physical efficiency or cardiac capacity. It is not possible in ordinary clinical practice to determine the vital capacity of every patient with cardiac symptoms, although this would perhaps be a better index than any of the exercise tests now in use.

Again, one should not tell every young person who has a cardiac murmur that he has heart disease. This is particularly true if the murmur happens to be systolic in time and basal in location. One is much more likely to be mistaken, if this is the only evidence of cardiac disease present, than he is to be correct, and the warning to this young person that he has cardiac disease may be productive of much harm. On the other hand, little harm and much good can be done by telling an elderly person that he has heart disease, even though the evidence is not very strong. Here there is much greater chance of being right than there is of being wrong. Elderly patients often have myocardial changes as the result of a gradual narrowing of the coronary arteries and inadequate supply of blood to the heart muscle, which can be detected neither by physical examination nor by electrocardiography. I recently saw a man 72 years of age, whose heart was normal in size, rate and rhythm, with perfectly normal tones and an electrocardiogram which might pass for that of a healthy young adult, who nevertheless suffered from angina of effort.

Again, it should be remembered that dyspnea may often arise from causes other than the heart itself. It may be the result of disease of the larynx, pulmonary fibrosis, the presence of a foreign body, Bright's disease, poisoning by drugs, bronchial spasm or other conditions.

I should like to repeat that failure of the heart muscle resulting in all the symptoms of congestive heart failure is much more frequently precipitated by some acute infection than it is by ordinary effort. The patient with chronic valvular heart disease in a stage of compensation soon learns the amount of exercise which can be tolerated. He is likely, therefore, to discontinue effort upon appearance of the slightest breathlessness, before any serious damage to his heart muscle has been produced. Acute respiratory tract infections, tonsillitis, pyelitis, dysentery, cholecystitis and other types of infection capable of giving rise to leukocytosis and fever produce cloudy swelling and other microscopic degenerative changes in the tissues of the heart with the result that the symptoms of congestive heart failure often make their appearance a week or ten days after the acute infection has subsided and at a time when the patient is again becoming active. Any cardiac patient, therefore, who has had a recent infection, should resume his normal activity very gradually, even though there are no indications of fatigue of the cardiac muscle.

700 North Michigan Avenue.

LYMPHOGRANULOMA INGUINALE*

W. Ray Jones, M.D.
SEATTLE, WASH.

Lymphogranuloma inguinale, also known as tropical bubo, is a fairly common but seldom diagnosed disease in this locality. It came forcibly to my attention recently, when I found a prostitute thus infected with the primary still present, attempting to ply her trade.

It is not infectious to the same extent as gonorrhea and syphilis. Several cases of husband and wife both being affected have recently been uncovered and also cases where but one member was infected. It is not necessarily spread sexually.

Whether this is a venereal disease or not is debatable. The American Neisserian Medical Society and the U. S. P. H. Service consider it as such. The proctologists and general practitioners insist that it is not, the reason being that the primary is most often not noticed and glands other than the inguinal may be first involved.

The disease begins as a papule, usually about the external genitalia which very much resembles a collapsed blister. This is commonly insignificant and unnoticed. The patient describes the enlarged inguinal glands as though about to burst from inside pressure. If opened, serum not pus, exudes. If left alone, they may rupture in pepper box top arrangement and exude serum, not pus, through multiple sinuses until secondary infaction ensues. The cause is a filtrable virus (figs. 1, 2).

With the female genital lymphatic drainage being more into the pelvic glands, lymph granuloma causes more pelvic and perirectal than inguinal distress. A woman may be a carrier with negligible symptoms herself. Rectal strictures are her common after complication (figs. 3, 4).

We should think of lymphogranuloma inguinale

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*Read before a staff meeting of King County Hospital, Seattle, Wash., Feb. 18, 1936.

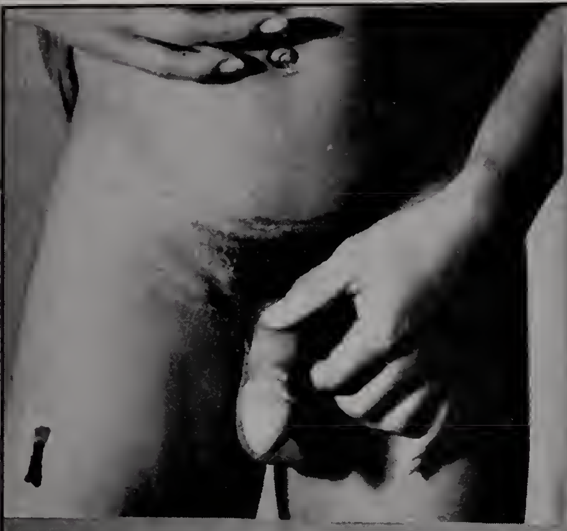

Fig. 1. Primary lymphogranuloma inguinale in a negro. Three weeks duration. Moderately enlarged glands in groin. Multiple primaries on glands and inner surface of prepuce above. Wassermann, darkfield, etc., negative. Recovered in two weeks under tartar emetic, heat and local medication.

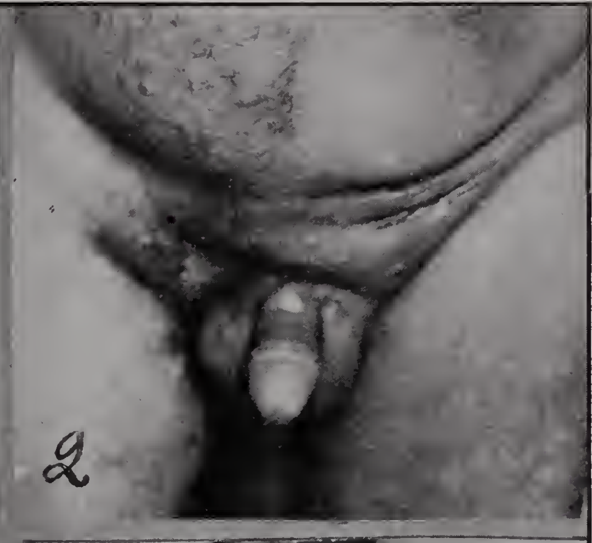

Fig. 2. Lymphogranuloma inguinale chronic. Multiple sinuses both at site of opening and where it broke through the skin. Recovered under treatment but recurred repeatedly.

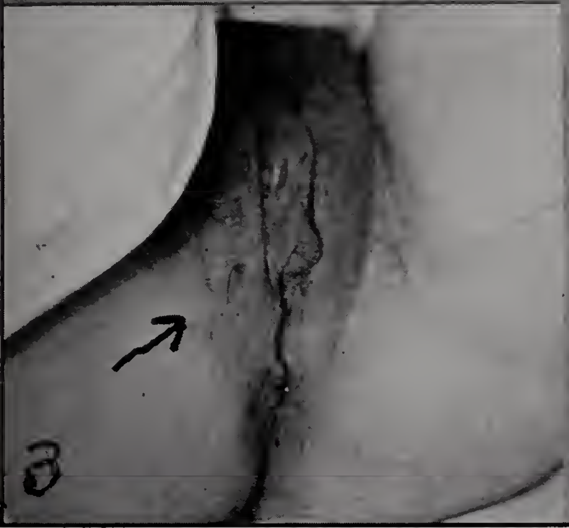

Fig. 3. Lymphogranuloma inguinale primary in a female. Single collapsed blister-like sore on labium. Primary, one month duration, itching but not painful. Symptoms all of pelvic inflammatory disease.

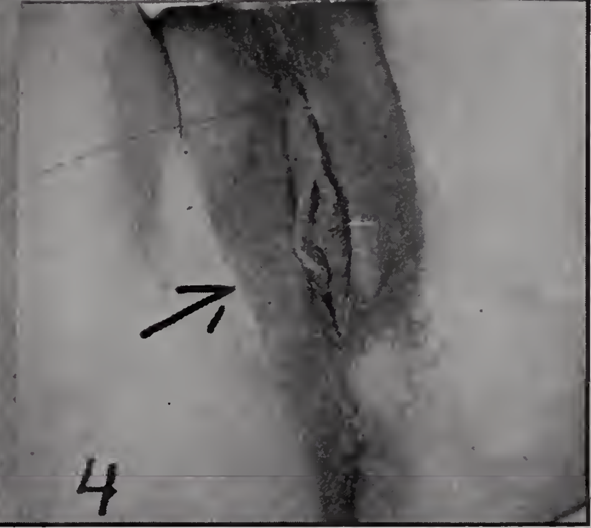

Fig. 4. Same as fig. 2, after ten days tartar emetic and Elliot heat. Herpetic sore healed and mere redness remaining. No open lesion. Rectum symptomless, still some pelvic soreness.

in all cases where a nondescript genital sore, plus inguinal adenopathy or suppuration, or a perirectal phlegmon in the female pus, negative laboratory findings for syphilis or chancroids are present. The primary may be present but not noticed for a month or two.

This disease must be distinguished from the granuloma inguinale, beginning as a skin papule resembling a burn, which spreads in all directions with superficial destruction of tissue and only indifferent involvement of the adjacent lymph glands. Diagnosis of granuloma inguinale is made by finding the Donovan bodies in the exudate. This infection is rare in this part of the country.

Treatment for both the ordinary and lymph granuloma is tartar emetic intravenously, dose from one to two grains daily, until rheumatic pains or other untoward symptoms appear. Then decrease to once or twice a week or whatever is necessary to keep the person conscious that he is treating (joint stiffness, etc.).

Locally use heat, either as wet dressings or radiant heat but no kind of diathermy. We need to try to prevent breaking down. If symptoms are too severe, one can dissect out the glands entirely but should not lance. If draining, 1 per cent gentian violet, preferably in acetone locally, holds the secondary infection in check. If taken in the early stages, recovery is fairly rapid; if left until secondary infection intervenes, extreme chronicity is the rule.

LOCAL ANESTHESIA IN OBSTETRICS*

F. J. A. Ditter, M.D.
YAKIMA, WASH.

This paper is presented without expected favor or a whit of pretended claim of originality. It has for a useful purpose the reiteration of facts already known, at least to isolated portions of the medical profession. It is prompted by the conviction that a host of obstetricians and general practitioners are overlooking or are reluctant to try a method that has long been placed before them. This method of local anesthesia in obstetrics adds immeasurably to the ease of a confinement, ease meaning comfort not only to the parturient but also an added four plus aptitude to the accoucheur's armamentarium.

Any physician who acknowledges the usefulness and the relative proven safety of local anesthesia in his surgical work will readily apprehend its possible applicability in managing his obstetric cases. In the past few years articles on local anesthesia in obstetrics have appeared periodically in our medical literature, and it is impossible for me to explain why it has not had a better "take" or become more popular than it is at the present. From time to time, new and uncertain types of obstetric analgesia and anesthesia have appeared for our approval and acceptance. In our willingness to fortify our present knowledge we are wont to try them out.

In this paper I am drawing your attention to another form of anesthesia. By use of procaine we possess a means of allaying pain in obstetrics. It is not mentioned with the belief that at last the ideal type of anesthesia is presented. It is my opinion as well as the concerted opinion of many others that every obstetric case is one unto herself, and it is futile to think any type of anesthesia will ever serve our entire purpose. Procaine is, therefore, mentioned as an adjunct to our scheme of individual cases. It makes little difference what type of analgesia we employ in the beginning because we can always sandwich in our perineal block at the terminal part of the delivery in order to effect more relief to that patient.

Because of the very modest obstetric practice of an individual it is impossible for me to give an impressive report from a large number of cases, as naturally would come from a large clinic, in order to present a few simple facts. Because I report from a relatively small number does not necessarily mean that I am an overwhelmed enthusiast, but that I am impressed with the usefulness of local anesthesia in obstetrics, if it is used properly on correctly selected cases. Perhaps the most pertinent statement I could make is the fact that in placing by injection the proper amount of procaine in the proper places we can produce an anesthesia and relaxation of the outlet.

The technic of injection is very simple and easily explained. The necessary material consists of a 10 cc. Luer-lok syringe, one one-half inch No. 25 hypodermic needle, one 4 inch No. 22 needle and preferably of flexible steel, 150 cc. of 1 per cent procaine solution, containing fifteen drops of 1-1000 solution epinephrine. Epinephrine is used in order to fix the procaine in the tissues for a greater length of time. It is especially useful because of the superabundant vascular supply of the region. Epinephrinized procaine also promotes a comparatively bloodless episiotomy that is highly desirable. The entire operative field is prepared with 10 per cent mercurochrome.

The first step is to raise a cutaneous wheal midway between the vaginal and rectal orifices. Then by inserting the index finger into the vagina direct it to the ischial tuberosity which will act as a landmark. Keep the tip of the finger at this point as it marks the approximate position of the pudendal nerve. The nerve is located about 1-2 cm. medial to this point. The large needle is now inserted through the cutaneous wheal and by aid of the finger can be tactilly pushed to the site of injection, using small amounts of the solution preceding the forward progress of the needle to the site of the pudendal nerve.

Always take the precaution to retract the plunger of the syringe before injecting to make sure that none of the solution is injected directly into the blood stream. Due to the abundance of blood vessels in this region it will be an exceptionally easy mistake to make. While an effort should be made to block the pudendal nerve, one cannot always be certain of success, so it is suggested that an effort be made to block all of the branches by fanning out the procaine solution in a horizontal direction according to the method of Braun. Usually 30-40 cc. of procaine on each side is sufficient. The site of expected episiotomy is then injected with 10-15 cc. of the epinephrinized procaine. The needle is now directed upward and about 10 cc. are injected in each labium major in order to block the lowest branches of the ilioinguinal nerves. By directing the needle downward 10-15 cc. are injected so as to circumscribe the rectum and block the lower branches of the pudendal and cutaneus femoris posterior. The procedure can be completed with ease in three to five minutes (fig. 1). The perineum

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*Read before a Meeting of Yakima County Medical Society, Yakima, Wash., December 9, 1935.

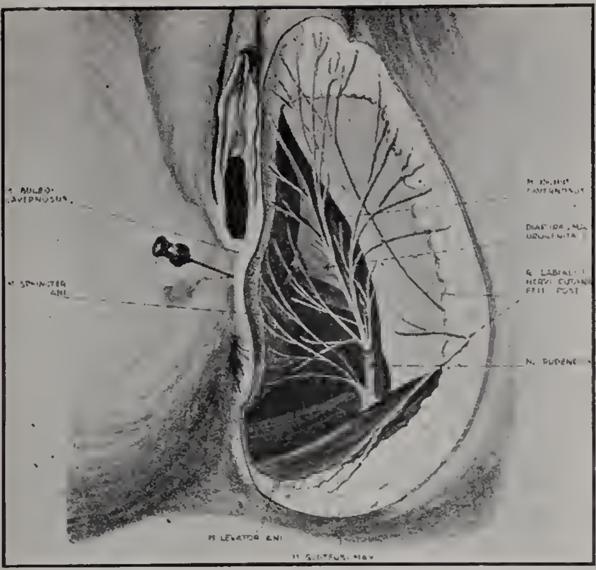

Fig. 1. Shows needle inserted along perineal floor with point directed to site of pudendal nerve as it emerges around and just medial to ischial tuberosity.

should be completely relaxed and can be stretched without pain.

The anesthesia should last at least sixty minutes and now the patient can continue to labor and expel the child by her own force or, if the head is well down on the perineum, low forceps can be applied if one so elects. It makes very little difference what type of analgesia is used as a preliminary. In the past year it has been my plan to use nembutal by mouth and paraldehyde by rectum. The nurse is instructed to call me when the head or buttock advancing on the perineum begins to open the anal orifice. This is the most satisfactory time to start local anesthesia.

To effect painless complete delivery of the child through the outlet this method is especially useful in the primipara. It belongs to her for varied reasons, the main reason being the natural slow progress of the head over the perineum which, in contrast with the frequent relative speed in the multipara, affords more time for the necessary nerve block. As a rule the mental attitude of the primipara is not distracted by previous experiences that necessarily belong to the multipara. The latter likely in the past has found peace from pain in general anesthesia and will hysterically demand it. Such situations will naturally cause one to abandon local in favor of a general anesthesia.

Occasionally we are confronted with a nervous primipara who is as incompatible with the local anesthesia method as the nervous multipara. Allow me to repeat at this point that we are dealing with individual cases, each an entity unto herself, and not just another obstetric case upon whom the method is to be tried in a routine manner. By and large, however, you will infrequently confront a case upon whom it cannot be logically used.

Because the limited time element belonging to a general practitioner prevents one from remaining with his patients, doubtless it is your experience to arrive to confine a multipara after the attendants have given a general anesthesia to prevent fetal precipitation. At the commencement of my own personal venture in this field, I was then content to inject only the area of a possible episiotomy in the multipara so it could be repaired without requiring more general anesthesia following delivery. Experience taught me that the injection of the pudendal nerves causes such a complete relaxation of the perineal floor that I do a complete block, despite the general anesthesia. As you already know, combined local and general anesthesia promotes much better abdominal surgery; necessarily you will find the same complete relaxation when dealing with the perineum.

This type of anesthesia is particularly indicated in breach presentations, where the cooperation of the mother is desirable to the very end. It prevents the pain that necessarily must come from perineal stretch.

Local anesthesia will prove advantageous in all types of complicating heart conditions, acute respiratory infections or as a matter of fact in any type of vital organ impairment where general anesthesia would act as an overload. In toxemias of pregnancy, where the physiology of the mother is so greatly unbalanced with accompanying liver dysfunction, one could hardly think of a better reason for choosing a local in preference to a general anesthesia.

Flooding the tissues with epinephrinized procaine has not to my knowledge caused any diminution in the reparative and healing power of the local tissue. Danger from infection by injection is not more hazardous than in any other part of the normal anatomy.

This procedure is recommended: (1) especially in primipara but can be used effectively in multipara, (2) to eliminate or reduce the amount of general anesthesia, (3) to speed up delivery, (4) to cause less trauma to mother and child, (5) for episiotomy repair, (6) for cases of vital organ impairment, toxemias of pregnancy, (7) for breach presentations, (8) as an institutional performance that could be carried out in the home, (9) as an added bit of refinement in managing our obstetric cases.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington and Idaho
Devoted to the Interests of the Medical Profession of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

APRIL, 1936

EDITORIAL

CONDONING CRIMINAL ABORTION

Criminal abortion refers to the termination of pregnancy in violation of legal prohibitions against this act. When the same operation is performed after open consultation for the purpose of saving the life of the mother, it is termed therapeutic abortion. There are no means for determination of the number of criminal abortions performed in our various states from year to year. Its widespread practice is well known to every physician. In spite of legal pronouncements and ecclesiastical denunciations, people in all walks of life resort to this procedure in spite of scruples and conscientious principles, when they encounter conditions which they consider justify it. Regardless of the earnestness with which one will condemn this procedure and denounce it in others, if he encounters an unwedded or undesirable pregnancy which he considers detrimental to his own situation, the chances are that he will seek an abortionist for the relief of the condition. The stigma of professional abortionist is abhorrent to all medical practitioners and yet in every community there are educated physicians who have developed abortion to a fine art and enrich themselves in this practice.

The enactment and enforcement of laws depend upon the support of public opinion. The failure to enforce the laws prohibiting criminal abortion is due to the indulgent attitude of the public. It is well known that relief from unsought and undesirable pregnancy is condoned by public opinion, so that conviction and sentence of the abortionist are rarely accomplished. This situation was convincingly illustrated in a recent trial for manslaughter which received much newspaper publicity. A competent physician, publicly specializing in abortion, performed this operation in his office where the young patient died from hemorrhage. In the face of convincing evidence of criminality he was acquitted. It was reported that the jury viewed the case with complacency, convinced that he had performed a commendable act. Parallel cases can be cited in all of our cities. Ordinarily the refusal of competent witnesses to offer their knowledge of such cases prevents effective prosecution and conviction.

Some people profess great admiration for the methods of the Russian government. Recently there was a Soviet celebration, commemorating the establishment of legalized abortion which provides that any woman so desiring is entitled to a certain number of abortions during a given period without cost at a state hospital. It is affirmed that the Russian mortality rate following abortion is the lowest on record, which may well be understood, considering the circumstances under which it is practiced and maintained. Perish the thought that such a system should be endorsed or even considered in this land of ours! At the same time, we cannot be blind to the fact that criminal abortion is an established procedure which is condoned by public opinion, it is practiced by well known specialists who enrich themselves from this form of revenue, its performance seldom terminates in prosecution and its practitioners more rarely are made to suffer as a result of their criminal actions.

MARCUS WHITMAN PORTRAIT

The Whitman Centennial celebration will be held in Walla Walla August 13-16, commemorating the arrival of the first American doctor to practice medicine west of the Rocky Mountains. The life deeds and tragic death of Dr. Whitman will be featured at this gathering and in subsequent publications. The decisive part which he played in preserving to the United States the great Oregon Territory has made Dr. Whitman one of the outstanding historical characters of the Pacific Northwest. It has been suggested that it would be an appreciative and courteous procedure for physicians practicing in our three Northwestern states to contribute as they are able to the painting of a portrait of this medical pioneer which will ultimately become the property of Whitman College, which institution is his living memorial. No portraits are extant of the doctor or his wife, Narcissa. The artist has conceived a portrait based on descriptions of Dr. Whitman, the sketch of which has been endorsed by those most intimately connected with Whitman College and this memorial celebration. An appeal is made to the physicians of this section to send such sums as they feel they can contribute to Dr. S. B. Penrose, 7 College Avenue, Walla Walla, for many years president of Whitman College, who has been requested to act in this capacity.

THE TWENTY-FOURTH ALUMNI MEETING

The twenty-fourth annual meeting of the Alumni Association of Medical School, University of Oregon, has passed into history. It was a remarkable affair from the standpoints of the program, the social aspect and the management. The selection of Thomas R. Brown of Johns Hopkins as the guest speaker was an inspiration. His round table discussion, his papers and his clinic were delightful in their presentation and profound yet simple in their contents. He gave his hearers a broad insight into the present-day knowledge of conditions that affect the gastrointestinal tract. It was a real pleasure to meet him. The program committee is to be congratulated on their selection.

The attendance at the three days meeting was very gratifying. These meetings, with their diversified programs of last minute postgraduate information, are receiving the attendance and appreciation which is their due, as is shown by the registration of physicians, graduates of other schools who are always more than welcome to attend. Next year the association will celebrate its twenty-fifth annual meeting. The newly-elected officers, Bertram Van Loan, president, and Thomas Robertson, secretary, together with the other officers, are already planning for next year. All physicians are invited to attend these yearly meetings.

JULY POSTGRADUATE COURSES

It is well to keep in mind the opportunities which will be presented to the profession of the Pacific Northwest for postgraduate study during the month of July. The meetings to be held in Portland and Seattle will offer unusual opportunities for receipt of information from leading exponents of medical, surgical and special lines of practice. The meeting of Pacific Northwest Medical Association covering four days, July 8-11, will offer a list of ten speakers. These include Lewis Pollock of Chicago, neurosurgery; Chevalier Jackson of Philadelphia, laryngoesophagoscopy; Ray M. Balyeat of Oklahoma City, allergy; Carl H. Davis of Minneapolis, gynecology and obstetrics; D. J. Davis of University of Illinois, pathology; P. J. Hanzlik of Stanford University, pharmacology; Walter J. Meek of University of Wisconsin, physiology; Alexis Hartmann of Washington University, pediatrics. The speakers for medicine and surgery have not been selected, but will be announced later. In Seattle the Washington Postgraduate Course of Lectures will cover five days, July 20-24. The faculty will consist of four lecturers, James H. Means of Harvard, medicine; Wilburn H. Smith of College of Medical Evangelists, gynecology; Harry B. Stone of Johns Hopkins, surgery; Lewis J. Pollock of Northwestern University, nervous and mental diseases. In following issues of this journal, programs of these meetings will be presented in detail with other information which is not available at this writing.

DELIGHTFUL VACATION EXCURSION

While planning for the coming summer vacation one would do well to consider the meeting of Pan-Pacific Surgical Congress which will be held in Honolulu, August 6-14. The steamship for this expedition will be the Matson liner Lurline, one of the most luxurious vessels plying the Pacific. The excursion will leave San Francisco July 31, returning to that city August 22. The prospectus for the expedition presents very alluring attractions on ship board, with descriptions of delightful sailing of four days going and coming. Many attractive features are listed in the city of Honolulu and other parts of the Hawaiian Islands. The week of scientific program will contain a list of important and informative papers which will be well worthwhile to all surgeons. More details of this meeting and excursion will be presented in subsequent issues of this journal. Further information may be obtained from George W. Swift, 902 Boren Ave., Seattle, President of Pan-Pacific Surgical Congress.

CORRECT LISTING OF OFFICIALS

For many years the officers of county societies of our three states have been listed under the heading, "Directory of County Medical Societies," as will be found on page 16 of the advertising section of this issue. An effort has been made to keep this up to date by periodical insertion of names of newly elected officers. The editor is not omniscient and has no means of ascertaining these necessary corrections unless information is received from officials of the respective county societies. In the present issue many corrections have been inserted. If errors still exist, it is requested that corrections be mailed to the journal office in order that this directory may be as complete as possible for the coming year.

CURTIS H. THOMSON

In the death of Curtis H. Thomson Washington State Medical Association has lost an official who has been intimately connected with its affairs during the past generation. While presidents and other officers have come and gone, Dr. Thomson served continuously for thirty-two years. This is a record of continuous secretaryship which can be paralleled by few officers in any medical organization. This period covered the most rapid growth of population in the state, together with medical progress as well as enlargement and development of the State Medical Association. Rarely, if ever, during this period was Dr. Thomson absent from an annual meeting. His presence at the side of the presiding officer was a fixture recognized by everyone. Owing to his personal characteristics and his viewpoint on many matters, he was a dominating figure in the proceedings of all state meetings. By reason of his continuous years of service, he was more familiar with the details of the state organization and its enactments in past years than any other of the officials whose terms of office were limited to a few years. Consequently, he was in some respects the outstanding member of the state organization so far as its administration was concerned and knowledge of its various technical features.

Dr. Thomson was one of the pioneer roentgenologists of the Northwest. Beginning the practice of this specialty when the destructive action of unguarded roentgen rays was unrecognized, he suffered the penalty which came to many early roentgenologists. As time went on the injuries to his hands increased from year to year, necessitating amputations of fingers and other painful operative procedures which resulted in a great handicap to his medical practice. Thus he joined the group of well known specialists in this line of practice, whose early experience entailed subsequent distressing results in aiding the progress of medical science. Dr. Thomson will long be held in memory by the Washington profession in consequence of these distinguished services which he performed for promoting the welfare of the profession of the state and in carrying on the duties of professional life.

MEDICAL NOTES

OREGON

Contributions From Birthday Ball. President Roosevelt's birthday ball, which was held in Portland January 30, resulted in substantial hospital contributions. Doernbecher and Shrine hospitals each received the sum of $921, while the University of Oregon Medical School was presented with $307. Thus Portland citizens extended substantial assistance to worthy institutions.

New Hospital Addition Under Construction. An addition is being constructed to Woodburn Hospital. It is one story with basement, 35x60 feet. It will contain ten rooms together with accommodations for maintenance and professional services. It will match the old building in architecture and general appearance.

Appointed Chief Surgeon. Ralph M. Dodson of Portland has been appointed chief surgeon of the Union Pacific Railroad, Northwestern Division. He succeeds Donald H. Jessop who has held that position for the past fifteen years.

Oregon State Medical Society will hold its annual meeting at The Dalles, October 8-10. Further details of the meeting, with listings of the program, will be presented in subsequent issues.

Wedding. Dr. Millard Rosenblatt of Portland and Miss Carolyn Guthman of Seattle were married at Hotel Olympic in the latter city, February 22.

WASHINGTON

Newly Appointed Secretary-Treasurer. Owing to the death last month of Curtis H. Thomson, a vacancy occurred in the office of secretary-treasurer of the State Medical Association. At a meeting of the trustees of the association, held March 8 in Seattle, Verne W. Spickard of that city was appointed secretary-treasurer to serve until the annual meeting in August. At this time the House of Delegates will elect a man to serve during the unexpired period of Dr. Thomson's term of office. H. Garner Wright of Seattle was at the same time appointed assistant secretary for western Washington, to serve until the annual meeting in place of Dr. Spickard who formerly held this office.

Gathering of Doctors and Lawyers. The annual banquet of King County Medical Society was held at Olympic Hotel, Seattle, on the evening of March 11 in conjunction with Seattle Bar Association. About eight hundred representatives of the two professions were in attendance. An interesting program was scheduled along the lines of Major Bowes, represented by a leading attorney, who presented amateurs from lawyers and doctors. They offered stunts and witticisms of varying degrees of excellence which furnished pleasing entertainment. It was the consensus of opinion that this gathering of the two professions established a precedent that it is hoped may be repeated in the future.

Puget Sound Surgical Society held its annual clinic at King County Hospital and banquet at Rainier Club, Seattle, March 28. The guest of the Society was Frederick L. Reichert, professor of surgery, Stanford University Medical School. Beside clinical demonstrations and discussions of cases, he delivered an address, "Lymph Edema in Man." The professional and social features of the meeting were greatly enjoyed by members of the society and guests from Seattle and other cities.

Hospital Reopens. Snoqualmie Falls Hospital has been reopened after being closed for three years. It will be under the management of Mrs. Myra H. Noyes, R.N. The building has been redecorated and remodeled and so altered as to accommodate fifty patients. The hospital is equipped to meet all medical and surgical requirements.

New Hospital Opened. Sequim General Hospital was opened for reception of patients February 24. It is a one-and-a-half story structure with ten private rooms, two wards, with surgery, obstetric rooms and other necessary equipment. Miss Alice McGoon of Portland has been engaged as head nurse.

Dedication of New Wing. Dedication of the new wing at Aldercrest Sanatorium near Everett was set for April 12. This wing has private rooms for seventeen patients. In addition to the presence of physicians interested in the institution, former patients were invited also to be present.

Hospital Addition. Cowlitz General Hospital is to have an addition built, a maternity wing which will provide rooms and wards for twenty additional patients. It will be one story building of fire-proof construction, extending north from the main part of the building.

New Director Appointed. W. E. Steele has been appointed medical director of the Department of Labor and Industries in place of H. Eugene Allen, resigned. For several years he has served as assistant director. In his place Harry L. Leavitt of Seattle has been appointed assistant director. These positions have been made full time service.

East Side Medical Club includes physicians in the district on the eastern side of Lake Washington. A meeting was held at Kirkland February 20. George Capaccio of Seattle spoke on "Allergy" and S. N. Berens of Seattle discussed "Brain Injuries." Officers elected for the ensuing year were George H. Davis, President, and J. W. Skinner, Secretary.

Whitman County Medical Society elected the following officers for the ensuing year at a recent meeting: President, James L. Gilleland of Pullman; Vice-President, Douglas McIntyre of St. Johns; Secretary, Edgar N. Layton of Colfax.

Grant County Medical Society is the youngest society organized in Washington, composed of physicians in Mason City, Grand Coulee and adjacent territory. Officers are: president, R. D. Wright, Mason City; secretary, A. H. Seering, Mason City.

Tacoma Surgical Society will hold its annual meeting at Tacoma April 11. The guest speaker will be H. L. Beye, Professor of Surgery, University of Iowa College of Medicine. The special subject for consideration will be "Surgical Pitfalls and Their Prevention."

Mr. K. B. Palmer, superintendent of Cowlitz General Hospital at Longview, died last month from complications following streptococcic sore throat. He had served as superintendent of the hospital for two months, going there from Tacoma where he had been in charge of Washington Minor Hospital.

Ralph E. Clark has located for practice in Spokane where he will be associated with C. W. Countryman. After graduating from Jefferson Medical College in Philadelphia he served for two years as interne at Chestnut Hill Hospital, Philadelphia. Recently he has been attached to a CCC unit near Missoula.

Reelected President. L. G. Woodford of Everett was reelected president of Snohomish County Tuberculosis League at its recent annual meeting in that city. The program of this meeting contained addresses by Frederick Slyfield and John E. Nelson of Seattle.

Medical Director Resigns. H. Eugene Allen of Seattle has resigned as medical director of the State Department of Labor and Industry. This has been a part time position and Dr. Allen needed more time for private practice after its extension to full time.

Woman's Auxiliary to Cowlitz and Wahkiakum County Medical Societies held a meeting at Longview March 10 at the same time of the county society meeting. Mrs. Lucretia Blair, state president, discussed duties and responsibilities of doctors' wives to the medical profession.

William Beach of Shelton recently celebrated fifty years of medical practice. For the past forty-six years he has practiced in Shelton where for a long period he has been city health officer.

E. P. Murdock, who formerly practiced at Winthrop, has located at Okanogan. He comes there directly from Grand Coulee where he has practiced for a time.

William Dietz, who has practiced for a number of years at Spokane, has located in Tekoa where he will be engaged in future practice.

Elected President. O. F. Lamson of Seattle was elected president of Pacific Coast Surgical Association at its recent annual meeting held at Del Monte, Calif.

A. E. Eyres, who has practiced for the past two years in Pullman, has moved to Seattle where he will engage in future practice.

Irving E. Kaveney, who has practiced recently in Seattle, has located at North Bonneville.

IDAHO

Hospital Construction. Glenn's Ferry Hospital is the name of a new institution which has been constructed from a residence known as the Hugh Sims home. Mrs. Sims and Mrs. Armell Rose, both registered nurses, are in charge of the institution. It is equipped for general medical, surgical and obstetrical work.

A Conference of CCC Camp Surgeons was held at Pocatello early in March. Discussions covered camp sanitation, clinical problems and medical administration as exemplified in the experience in camps of that section.

Harwood H. Stowe, who has practiced in Kimberly for the past two years, has moved to Twin Falls where he will engage in future practice.

OBITUARIES

Dr. Ernest A. Sommer of Portland, Ore., died March 15, following a prolonged illness from cerebral hemorrhage, aged 66 years. He was born in South Bethlehem, Pa., in 1870. His early education was in schools of Montreal, whence he moved to Portland in 1887. He obtained his medical degree from Willamette University Medical School in 1890. He served in New York hospitals and as ship's surgeon until 1894, when he returned and entered practice in Oregon City. He served as mayor of that city in 1905, then spent two years studying in European medical centers, paying especial attention to surgery. In 1912 he located for practice in Portland. In 1917 he was commissioned captain in U. S. Medical Corps. He was charter member of American College of Surgeons when it was formed in 1913 and later served on the Board of Governors, being first vice-president in 1923. He was an active member of many medical associations and connected with Portland hospitals, also serving as a member of the faculty of University of Oregon Medical School. He had a forceful character which made him a leader in many lines of professional work. Being fond of medical literature he collected a large medical library which on his retirement from practice five years ago was donated as a unit to the library of the University of Oregon Medical School.

Dr. Curtis H. Thomson of Seattle, Wash., died March 7, from pneumonia and cardiac disease, aged 61 years. He was born in Pensacola, Fla., in 1874. He obtained his medical degree from University of Virginia Department of Medicine in 1897, following which he pursued study in Johns Hopkins University. He located for practice in Seattle in 1901, continuing there until the time of his death. During the World War he served as Lieutenant in the Naval Medical Corps, being located for service at the Naval Medical Department at the University of Washington and later stationed at Bremerton. In 1904 he was elected secretary of Washington State Medical Association, continuing in that office until the time of his death. This period of thirty-two years of continuous service has rarely been equalled. At the beginning of practice he became interested in roentgenology, in which he specialized during most of his years of practice. Unfamiliarity with the dangerous qualities of roentgen rays in the early days resulted in malignant injuries of hands and fingers, requiring subsequent amputations and much suffering. In consequence of his official position in the state association, he was one of the best known members of the profession in the state. He took an active part in shaping the policies of the organization during a long period of years.

Dr. George C. Wagner of Tacoma, Wash., died February 25, after a long period of illness, aged 76 years. He was born in Ontario, Canada, in 1859. He obtained his medical degree from McGill University in 1881. For a time he practiced at Dickerson's Landing, Ontario, succeeding his father and brother. In 1883 he located in Tacoma, where for many years he was one of the leading and best known physicians. He was one of the first physicians to recognize the value of ultraviolet radiation and specialized in this form of practice. Several pieces of quartz apparatus are sold under his name. He was held in high respect by a large circle of acquaintances and the medical profession.

Dr. Edwin E. Whiteside, Captain, U.S.A., Retired, died at Veterans Hospital, American Lake, Wash., March 2. He was born in Missouri in 1871 and graduated from Central College, Fayette, in 1897. He received his medical degree from Barnes Medical College, St. Louis, in 1907. He took postgraduate work in eye, ear, nose and throat in Washington University Medical School, St. Louis, in 1920. During the war, he served for eleven months in France. During the past twelve years, he has lived in Oregon, but has not practiced on account of ill health.

Dr. John R. Morgan of Twin Falls, Ida., died suddenly, February 20, from coronary disease of the heart, aged 62 years. He was born at Willard, Utah, in 1873. He was a resident of southern Idaho for a number of years, teaching school at Elba. He operated a ranch for several years. He obtained his medical degree from Northwestern University Medical School in 1907, after which he located for practice at Twin Falls, continuing there until the time of his death. During the war he was inspector in service of the American Red Cross located in Paris hospitals and received the rank of captain in the United States Army.

Dr. James M. Kearns of Malad City, Ida., died suddenly from cerebral hemorrhage, March 9, aged 59 years. He was born in Monticello, Ky., in 1877. He obtained his medical degree from Hospital College of Medicine, Louisville, Ky., in 1898. After practicing a short time at Frazier, he moved to Malad in 1898. In 1918 he enlisted in the army, being discharged with rank of captain in 1919. He served for a time as county physician. He had a wide acquaintance and was held in high esteem by the residents of that section of the state.

Dr. Jesse L. Paine of Olympia, Wash., died March 18 from an infection following a scratch on the nose inflicted by an obstreperous prisoner, aged 49 years. He was born in Ansley, Neb., in 1887. After premedical study at Lincoln University he received his medical degree from Eclectic Medical College, Cincinnati, in 1916. After practicing at Broken Bow, Neb., for eight years, he located in Elma in 1924. He moved to Olympia in 1930, where he developed a large practice.

Dr. C. K. Osborne of Dayton, Wash., died February 17, from a self-inflicted bullet wound, aged 63 years. He was born near New York City in 1873. He graduated from Denver College of Medicine in 1899. He practiced for a time at a mining camp near Denver and later was located in New Mexico. About 1920 he located at Starbuck, moving from there to Dayton in 1935.

REPORTS OF SOCIETY MEETINGS

OREGON

JACKSON COUNTY MEDICAL SOCIETY

Pres., F. G. Thayer; Secty., H. A. Woods

Jackson County Medical Society held a dinner meeting at Ashland Hotel, Ashland, March 18, with Harvey A. Woods acting as host. There was a good attendance from the membership. A paper was read by President F. G. Thayer of Medford on "Pain from Ear, Nose and Throat Conditions." A general discussion was elicited.

MID-COLUMBIA MEDICAL SOCIETY

Pres., Grace Young; Secty., L. V. Moore

Mid-Columbia Medical Society held a meeting at The Dalles, February 29. Following a dinner at Hotel Dalles, at which president Grace Young presided, the following officers were elected for the ensuing year: President, J. M. Odell of The Dalles; Vice-President, C. M. McCain of Hood River; Secretary-Treasurer, Ethel Gasman of The Dalles. There was discussion concerning the fall meeting of the state medical society which will be held at The Dalles.

UMATILLA COUNTY MEDICAL SOCIETY

Pres., C. W. Thomas; Secty., H. J. Flower

The Umatilla County Medical Society held a meeting at Pendleton, March 10, preceded by dinner at Pendleton Hotel, following which a scientific session was held at the office of J. P. Brennan.

J. C. Lyman of Walla Walla read a paper illustrated by lantern slides on "Tuberculosis of the Kidneys, the Management and Surgical Treatment."

Carl J. Johannesson of Walla Walla presented a number of unusual and interesting roentgen films, showing pathologic lesions as seen from a radiographic standpoint.

More than thirty physicians were in attendance. Members of Walla Walla Valley Medical Society were guests of the Pendleton physicians. The following men made the trip from Walla Walla: Elmer Hill, J. W. Ingram, Sam Page, R. W. Smith and Walter Swackhammer, manager of the U. S. Veterans' Hospital; also present were H. J. Flower of Milton, and Wesley V. Frick of Dayton, Wash.

WASHINGTON

COWLITZ COUNTY MEDICAL SOCIETY

Pres., J. W. Henderson; Secty., A. F. Birbeck

Cowlitz County Medical Society held a meeting at Hotel Monticello, Longview, March 10. Twenty doctors were present, including men from Wahkiakum county.

Charles P. Wilson of Portland discussed "Diagnosis and treatment of Rheumatism." This was followed by a general discussion, this being a subject with which every doctor has a wide experience in practice.

A. J. McLean of Portland considered "Spinal Injuries," especially resulting from automobile accidents and those among lumbermen.

At a meeting two months ago J. W. Henderson of Longview was elected president and A. F. Birbeck was re-elected secretary.

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

A regular meeting of King County Medical Society was held in the Auditorium of Medical Dental Bldg., Seattle, March 2, Vice-President V. W. Spickard presided in the absence of President R. D. Forbes. Minutes of the meeting of February 17 were read and approved.

D. H. Houston announced that the annual banquet, honoring retiring President Raymond L. Zech, would be held in the Olympic Hotel instead of the Arctic Club.

Bryan Newson explained that the health department recommended immunization by private physicians and that the vaccine would be furnished them for this purpose.

The program consisted of papers presented by internes from various Seattle hospitals.

Frederick Ackerman of Columbus Hospital read a paper on "Thrombocytopenic Purpura." The patient, five years of age, was admitted June 18, 1935. Symptoms and laboratory examinations were detailed. Several diagnoses were suggested. After injections of Moccasin Snake Venom solution she recovered and was discharged December 5.

O. J. Blende of Seattle General Hospital read a paper on "Spontaneous Subarachnoid Hemorrhage." Pathology and symptoms of the condition were described, together with treatment. The patient was a female, 61 years of age.

H. H. Curd of Virginia Mason Hospital presented a paper on "Pneumococcal Meningitis with Recovery." Various forms of treatment were described which have been used for this condition. The patient, a woman of 53 years, was admitted December 3, 1935, after two weeks illness with upper respiratory infection. The diagnosis being established, treatment consisted of a ureteral catheter inserted through a trocar into the subarachnoid space in the lumbar region. Fluids were given freely by mouth and antipneumococcal serum intravenously. She recovered at the end of four weeks.

Edgar E. Findley of Seattle Marine Hospital read a paper on "Lymphogranuloma Inguinale." Pathology was described with consideration of symptoms. Etiologic agent is said to be a filterable virus. Five cases have been diagnosed at the hospital, two originating in the Orient, two in Seattle and one in San Francisco.

Francis E. Flaherty of King County Hospital presented a paper on "Experimental Study in a New Method of Diagnosing Tuberculous Infections." Experiments were based on the fact that, if a patient with active tuberculosis receives a second infection with insufficient immunity, he may develop rapidly to fatal termination. Guinea pigs injected with live tubercle bacilli were given sensitizing doses at suitable periods to determine their effect. These experiments have not yet been tried on the human.

Jack R. Karel of Providence Hospital read a paper on "Treatment of Epidemic Meningitis with Intravenous Administration of Meningococcic Antitoxin." This paper was published in January issue of NORTHWEST MEDICINE.

David R. Louree of Children's Orthopedic Hospital presented a paper on "Acute Generalized Peritonitis in Children." A girl of ten months was treated for right lobar pneumonia, later developing pneumococcic peritonitis. A four year old male child, with pneumonia also developed appendicitis which was treated by operation with fatal result.

Adrien Schroeder of Swedish Hospital presented a case report.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., F. W. Baugh; Secty., Harold Hopke

Skagit County Medical Society held a meeting at Masonic Temple, Mount Vernon, following dinner at President Hotel, February 24, president F. W. Baugh presiding. About twenty-five men were in attendance. The program consisted of papers by M. P. Dorman and C. M. Helwig of Seattle.

SPOKANE COUNTY MEDICAL SOCIETY

Pres., F. G. Sprowl; Secty., M. T. Harris

Spokane County Medical Society held a meeting in Spokane March 12, President F. G. Sprowl presiding. Paul B. Nutter and Robert L. Howard were voted into membership. The program consisted of an address by George W. Swift of Seattle on "Spinal Drainage in Treatment of Head Injuries." Cases were recited illustrating the usefulness of this procedure in different forms of cerebral injury.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

Walla Walla Valley Medical Society held its regular monthly dinner meeting at Grand Hotel, Thursday evening, March 12. More than forty-five physicians were present, including J. F. Gist and Russell Scott of Lewiston, Ida. Special guests were O. Weikotten, representative of the American College of Surgeons and Dr. Kegibein of Los Angeles.

President John C. Lyman presided and after dinner introduced the speaker, Alexander B. Hepler, Seattle, who discussed "Urology and Urologic Problems from the General Practitioner's Viewpoint." He laid particular stress on the following order of examinations: kidney palpation and percussion, external genitalia, examination of urine by the two or three glass tests, rectal and prostatic examination, ureters, calibration and catheterization, urography by intravenous injection of contrast media and retrograde pyelographic roentgen studies, renal function tests. General discussion was led by Harry Flower of Milton, R. W. Smith and F. C. Robinson.

At a business session lodge contract practice was presented. On motion of Dr. Robinson it was voted that the chair appoint a committee to draft an agreement refraining from such contract practice and have it signed by all members in the Walla Walla territory and radius of twenty miles. This agreement would be binding if signed by all members in territory described, that the members refrain from and refuse lodge contracts, due to the fact that fees paid by fraternal organizations are so ridiculously low that they are absolutely unreasonable and unfair to all concerned, and it is considered an injustice to ask the medical profession to participate in such type of practice. R. W. Smith and F. C. Robinson were appointed the committee to draw up the agreement. Every member present including some physicians within the said territory not members, all signed the resolution and agreement.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull

The regular monthly meeting of Yakima County Medical Society was held at the Commercial Hotel, Yakima, March 9. The usual dinner preceded the meeting. Twenty-nine members and two visiting physicians were present.

George R. Marshall of Seattle presented a paper on "Proctologic Examinations," illustrated by lantern slides. This was discussed by Drs. McGuiness, Bice and Ditter.

K. K. Sherwood of Kirkland read a paper on "Chronic Arthritis." Discussion by Drs. Mullinex, Marcy, McCalla and Hull.

IDAHO

NORTH IDAHO DISTRICT SOCIETY

Pres., P. E. Haury; Secty., J. F. Gist

North Idaho District Society held a meeting at Lewiston, February 19, with members present from several towns in central Idaho and southeastern Washington. The program consisted of a paper by C. L. Lyon of Spokane on "Convulsions in Children, Cause and Treatment." G. H. Anderson of Spokane discussed case reports.

North Idaho District Society held a meeting at Lewis-Clark hotel, Lewiston, March 18, president Paul G. Haury presiding. There were visitors from other Idaho cities and Spokane. Arthur Betts of Spokane read a paper on "X-Ray Diagnosis of Organic Pathology of the Colon." James Nelson of Spokane read a paper on "Acute and Chronic Empyema."

J. D. Dunshee, state public health adviser, discussed federal allotment of funds for public health work. The amount of $169,721 will be available for the year ending Feb. 1, 1937, to carry on state work. Of this sum the State of Idaho will provide $87,626, the balance coming from U. S. public health service and children's bureau.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

Portland, Ore., March 21, 1936.

The March 3 meeting of the Council of Oregon State Medical Society was held at Campbell Court Hotel, Portland. Four dates were mentioned prominently during the meeting. It was decided that the next annual meeting of Oregon State Medical Society be held in The Dalles, October 8-10. The doctors of The Dalles promise a most interesting visit to their city and the program committee foretells an unusually good program. It was decided, on invitation of Southern Oregon Medical Society, that the May 2 meeting of the Council be held in connection with their meeting at Klamath Falls. The Umatilla County Medical Society invited the Council to meet in Pendleton, June 6. These outside meetings are held upon invitation of local societies and have been the means of more closely cementing component societies to the state society.

The fourth date of importance is July 8 to 11 inclusive, the fifteenth annual meeting of Pacific Northwest Medical Association. The program is an outstanding one, including Lewis Pollock, Chicago, neurosurgery; Chevalier Jackson, Philadelphia, laryngoesophagoscopy; Ray M. Balyeat, Oklahoma City, allergy; Carl Henry Davis, Minneapolis, gynecology and obstetrics; D. J. Davis, University of Illinois, pathology; P. J. Hanzlik, Stanford University, pharmacology; Walter J. Meek, University of Wisconsin, physiology, and Alexis Hartmann, Washington University, pediatrics. Speakers on medicine and surgery are to be announced. Every doctor should attend this noteworthy program.

It was voted that the State Board of Control be urged to provide additional facilities for care of indigent cases of active tuberculosis in Oregon, and that chronic incurables be cared for in convalescent homes. It was pointed out that care of an acute case costs the state about $48.50 per month, while a chronic case could be cared for equally well at from twelve to fifteen dollars per month in a convalescent home. It was voted that a committee be appointed to make a survey as to the requirements to meet these conditions so that recommendations can be made to the Board. Thompson Coberth of The Dalles, Gerald B. Smith of Woodburn and Charles P. Wilson of Portland were appointed to make the survey.

A resolution of confidence and appreciation to Morris Fishbein, editor of *Journal of American Medical Association,* was unanimously voted, several of the members commending the wide scope and worth to the profession of Dr. Fishbein's nonofficial as well as official activities.

It was the desire of the Council that all physicians in Oregon take cognizance of the fact that, when treating injured workmen under the Accident Commission who are insured by a hospital association, it is necessary, in order that misunderstanding does not arise, to fill out both the blanks of the Accident Commission as well as those of the hospital association involved. This is necessary in those cases where the hospital association pays the bill, although the work is done ostensibly for the Accident Commission.

A. G. Bettman, *Editor.*

WASHINGTON

STATE ASSOCIATION INTERESTS

Yakima, Wash., March 25, 1936.

My message this month will deal mainly with what is doing in the State Association. During January and February two meetings of the Board of Trustees were held, at which were discussed various subjects of interest to the profession. Legal matters, legislative questions, social medicine, indigent relief care have all come in for their share of discussion. The Trustees have gone on record as being opposed to the various so-called medical surveys that are being sponsored by the government under the guise of public health service. We consider it an unnecessary expenditure of money for what is assuredly an unreliable, uninformative report on imaginary conditions. We believe that very little good can come from these reports and that, due to the unreliableness of the sources, much harm may be done to organized medicine.

At the last meeting in March M. Shelby Jared of Seattle was appointed to succeed Frank J. Clancy as chairman of Public Relations Committee. Dr. Jared has for a long time kept closely in touch with the activities of this committee, and I feel that the Association is to be congratulated upon having one of his ability to carry on the work already started by this group.

I have heard from a number of the state committee chairmen, and am pleased with the work they are doing and the programs they have outlined for the year. Some of the committees, however, are very noticeable by their modest inactivity. Some of us are wondering why so many committees are appointed, when only a few are active.

Another item of vital interest to the members is the date of our annual meeting. It has been definitely decided to hold the Washington State Medical Association meeting in Yakima on Monday, Tuesday and Wednesday, August 31, September 1 and 2. The weather at that time of the year is always delightful here, and it is thought that these dates will not conflict with any other important gatherings.

As usual, Monday, the first day, will be given over to golf, with the golf dinner in the evening. The scientific programs will occupy both Tuesday and Wednesday. The program committee is busy selecting speakers, and we feel that we can promise something of value to each of you who come.

The Woman's Auxiliary is planning on outdoing any past efforts at their meeting on September 1 and 2.

I do not feel it out of place at this time to suggest that the different County Societies should be looking about right now for some legislative timber for our next November election. The cults have already started by offering an initiative. A word to the wise should be sufficient. We will need good men at Olympia, so why not have *your* choice?

Remember the State meeting in Yakima, August 31-September 2. D. F. Bice, *President.*

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WOMAN'S AUXILIARY

Wenatchee, Wash., March 25, 1936.

Pierce County Auxiliary sponsored the seventh of a series of "national teas," Thursday, March 12, at the home of Mrs. Ralph Schaffer at Tacoma. A short business meeting presided over by Mrs. Weldon Pascoe was followed by a program of exceptional interest, arranged by Mrs. A. E. Hillis. Mrs. H. T. Lentz of Seattle gave a fascinating talk on "Medicine Men in China," drawing on personal observations and experiences during a long stay in China. Songs in the Chinese manner were sung charmingly by Mrs. Darrell Running. A group of auxiliary members acted as hostesses. Decorations were in the Chinese motif.

Clark County Auxiliary enjoys the custom of a joint dinner meeting with the Medical Society at the Evergreen Hotel followed by separate business meetings. Interesting papers covering a wide range of subjects pertaining to the medical profession are given at these sessions. At the March meeting, Mr. Arthur Moulton of the Mid-dale Dairy was the guest speaker.

Kitsap County Auxiliary, newly organized this year, is very active, having sponsored health programs for the P.-T. A. meetings, checked in medical books in the local library and submitted a list of titles approved by the A. M. A. A very interesting meeting was held recently at Bremerton, when the Auxiliary joined the Medical Society in honoring Dr. and Mrs. Bice, with naval doctors and their wives as guests.

Chelan County Auxiliary met at the home of Dr. and Mrs. Sawyer at Wenatchee for a delightful dinner, the proceeds of which are for the Hygeia fund. The Honorable Belle Reeves, Representative, was a guest and gave a most enlightening discussion on legislative procedure and its particular application to medical bills. Mrs. Reeves left no doubt in the minds of the Auxiliary members that the wives of doctors, if they be eligible, have every reason to belong to the Auxiliary if they would help most effectively to preserve the status still retained by the medical profession and restore it to its former niche in the esteem of the public.

Spokane County Auxiliary met at the home of Mrs. T. E. Hoxsey at Spokane for the March meeting. Receiving with the hostess were Mrs. O. M. Rott, Mrs. W. W. Henderson, Mrs. Eric Richter, Mrs. Lee Rogers and Mrs. Frank Milburn.

The Publicity Committee of King County Medical Society has empowered their Auxiliary to assist as much as possible in medical publicity. Members of the Auxiliary have cooperated in writing and giving broadcasts, which members of the Society were too busy to give. Dr. Leibly, who has charge of the radio programs, has arranged that one of the Medical Society members will give a talk each Monday over Station KJR from 5:15 to 5:30. Listen in and get your friends to do likewise. At their March meeting, Miss Helen Wilcox, executive secretary of the Public Health League, gave a talk on "State Legislation Affecting Medical Practice." Miss Wilcox's work is not only interesting, but highly important. Mrs. George E. Hoxsey,

Press and Publicity Chairman.

BOOK REVIEWS

The Parathyroids In Health and In Disease. By David H. Shelling, B.Sc., M.D., The Johns Hopkins University, Baltimore. Illustrated. 335 pp. $5.00. The C. V. Mosby Co., St. Louis, 1935.

Many articles have been written on the parathyroid glands in the past few years, and this book with its voluminous references gives to its readers the most recent and up-to-date knowledge of their functions and diseases. In easy, understandable, comprehensible language the author explains as far as is known the normal and abnormal phenomena associated with parathyroid secretion or lack of secretion in terms of known laws of physiology and chemistry. Starting with the earliest discovery of the parathyroid glands in 1880 until the recent discovery of their definite association with calcium metabolism and the isolation of the parathyroid hormone, the author gives a very clear conception of their physiologic action in the body. For some time it was thought there was a loss of calcium from the body in hypoparathyroidism, and only recently has the fact been established that a retention of phosphorus causes a negative phosphorus and calcium balance. By giving large amounts of calcium or increasing the diet rich in calcium or lowering the phosphorus intake, or giving parathyroid hormone causing a phosphorus dieuresis, the calcium-phosphorus balance can be brought nearer to normal or normal, and symptoms of hypoparathyroidism alleviated.

The chapter on the parathyroid hormone, its physiologic effects, the artificial production of osteitis fibrosa cystica, functional involution atrophy of the parathyroid gland, when the hormone is given in large quantities over a period of time, are as interesting as the story of insulin. The author devotes an entire chapter to tetany and hypoparathyroidism. The symptoms are clearly defined. The methods of treatment are carefully written. The chapter on hyperparathyroidism and osteitis fibrosa cystica offers the latest known knowledge of this condition. Roentgenographic plates, differential diagnosis and pathologic microphotographs are especially good.

The last chapter, dealing with the use and misuse of the parathyroid hormone, will clear many points which have been more or less confusing to the profession since the recent discovery of the active substance of the parathyroid glands. Neglecting the importance of the role of phosphorus in bone formation and its indiscriminate use have caused a depletion in the bony structures which in turn caused a calcium-phosphorus imbalance. Phosphorus is a great aid in treatment of certain diseases and must be used judiciously. The entire book closely binds together known facts of calcium metabolism and the parathyroid glands. Bowles.

Immunology. By Noble Pierce Sherwood, Ph.D., M.D., Professor of Bacteriology, University of Kansas, etc. Illustrated. 608 pp. $6.00. The C. V. Mosby Company, St. Louis, 1935.

From the many fundamental sciences which enter the ground work of modern medical practice, few deserve a higher rank than immunology. In this field have developed most of the changes which have revolutionized medicine in the past fifty years. A new text, therefore, in this field becomes a real contribution to medical literature and is worthy of serious consideration. This volume is a text. It was written for students, is actually derived from mimeographed material presented for several years in the universities of Kansas and Montana. It is an attempt to provide a knowledge and an understanding of the fundamental principles of immunology. It is a teaching volume.

Its practical value, therefore, is to a slight degree subordinated to its completeness and its historical accuracy. A very obvious effort has been made to give due credit to all authors of significant contributions and to place priority where it belongs. Despite this scholarly approach the book is eminently readable and easily read. The language is simple, clear and direct. The arrangement is splendid in that the simpler phases of the subject are considered first and gradually the student is led from a study of infections and infectious agents, through resistance of the individual, inflammation, theories of immunity, diagnostic applications, blood groupings, details of the various classes of antibodies, specificity, mechanism of antigen antibody relationships and complement fixation to an extensive study of hypersensitiveness and allergy. Each chapter is concluded with an extensive bibliography. This volume should prove to be a useful text for the medical student and a splendid means of review for the practitioner. Hartley.

Postmortems and Morbid Anatomy. By Theodore Shennan, M.D., F.R.C.S. (Edin.). Professor of Pathology in the University of Aberdeen. Third Edition. Illustrated. 716 pp. $9.00. William Wood & Co., Baltimore, 1935.

This work is essentially a small text-book of pathology, in which the approach is that of descriptive regional pathology, i. e., the book is divided into chapters corresponding to the various anatomic units (abdomen, thorax, brain, etc.). Methods for examining each portion are given along with the common pathologic alterations encountered in them. This accounts for the unusual length of what appears to be a manual of autopsy technic.

Since an explanatory introduction is lacking, one wonders at the original purpose for which this book was conceived. If the author has the time and facilities for teaching pathology to students by continuously using the autopsy itself as a point of departure, as it were, he is to be envied. The usual medical school courses in pathology, which must necessarily use what amounts to isolated museum specimens of diseased organs supplemented with lectures on their disease processes, never teach the sounder knowledge of pathology that is attained with the system which uses the autopsy follow-up of complete case history. Such a system requires an abundant supply of autopsy material.

There must be many doctors throughout the world who have not had special training in postmortem work and yet who have the opportunity of performing numerous autopsies. For such, this manual might serve as a useful guide, although it should not be relied upon as the sole reference work of pathology. It contains normal weights and measurements for various organs and a brief section on death from poisons. C. R. Jensen.

Encyclopaedia Sexualis. A Comprehensive Encyclopaedia-Dictionary of the Sexual Sciences. Edited by Victor Robinson, M.D., Professor of History of Medicine, Temple University School of Medicine, Philadelphia, etc. 819 pp. $7.50. Dingwall-Rock, Ltd., New York, 1936.

The editor quotes Bloch: "Truth is always a good thing, even truth regarding the sexual life"; and Hirschfeld: "Sex and love are as old as mankind, but the science of sex and love, sexology, is the youngest of all sciences." There are one hundred eighteen contributors to this volume, including medical college professors, sociologists, physiologists and various other scientists from the United States and European countries. The editor states that never before has so extensive and eminent a group collaborated in the study of sexual life. The book is written by and for men and women who are mentally and sexually mature. It is devoted largely to the biological and experimental aspects of the subject. The material is arranged alphabetically, beginning with AAA, an undetermined disease, mentioned in Egyptian papyri followed by a phallus as hieroglyph, and ending with Zwischenstufe, a term applied to homosexuals. Subjects considered are innumerable. Taken at random one notices birth control, Bocaccio, Catholic Church and sex problems, history of condom, fertility and infertility, female sex hormones, legislation of Greeks and Romans on sex, marriage, prostitution, race admixture in South Africa, psychoanalysis. These few titles suggest the wide extent which this volume covers in matters dealing with sexology.

MEDICAL TREATMENT OF GALLBLADDER DISEASE. By Martin E. Rehfuss, M.D., Clinical Professor of Medicine at Jefferson Medical College, Philadelphia; and Guy M. Nelson, M.D., Instructor of Medicine at Jefferson Medical College, Philadelphia. 465 pages with 113 illustrations. Cloth, $5.50 net. Philadelphia and London: W. B. Saunders Company, 1935.

This volume is based on a study of nine hundred and eight cases of gallbladder disease in which medical treatment was elected. Many of them presented problems of chronic infection which gallbladder surgery failed to alleviate and not a few presented bile tract problems as difficult as those which compelled them to consult a surgeon. Unhesitatingly surgery is given first place as the one efficient instrument against gallbladder disease, but it is emphatically denied that surgery is a cure-all for the disease or that it necessarily roots out or controls the causative factor. The presence of calculus always inclines the clinician to a surgical solution and it is definitely known that surgery is by no means successful in the noncalculus type.

For this reason the necessity of an exact roentgen exploration of the gallbladder is emphasized. A long chapter is devoted to the roentgen technic and the interpretation of the result in gallbladder disease. The fact that routine studies of the duodenum, pylorus and the antrum is essential is also emphasized. Fixation of these organs with changes in the contour of the gallbladder spells pericholicystitis on the operating table.

In a study of two thousand nine hundred and eight cases diagnosed as gallbladder disease not one case of carcinoma was found; therefore, the incidence of carcinoma of the gallbladder is less than the mortality rate of gallbladder surgery. An exact method of duodenal intubation and an interesting study of the results obtained is found. A great deal of experimental work has been done to show how gallbladder infection and disease can be brought about by various types of pathogenic organisms. Considerable attention is given to diet in gallbladder infection and disease with and without stones. One interesting chapter is devoted to the preoperative care of the gallbladder patient. At the end of the book is a chapter on useful instruction for a patient with gallbladder trouble. This book deserves a place on the shelf of every doctor who is interested in gallbladder disease, including the surgeon. FRIEND.

DISEASE AND DESTINY. By Ralph H. Major, M.D., Author of "The Doctor Explains," etc. 338 pp. $3.50. D. Appleton-Century Co., Inc., New York and London, 1936.

This is an exceedingly interesting volume, featuring the great epidemics that have affected mankind. It is not a scientific discussion of diseases, but rather a historical review of the effects which these epidemics have produced on the world's history. Beginning with The Black Death, the author graphically describes the beginning of the downfall of Greek culture when Athens was attacked by bubonic plague in the fifth century, B.C. Its complete demolition followed later when malaria was the great prevailing epidemic. In the fifteenth century it is estimated the bubonic plague caused forty millions of deaths in Europe and Asia. It is claimed the devastation thus produced inaugurated the Renaissance with subsequent changes in world civilization. A description follows of Jail Fever, so termed before typhus and its cause were known. Similar epidemics of this disease determined the fate of nations. When Napoleon attempted to conquer Russia, cold and defense of the Russian army were a feature in his defeat, but deaths from these causes were insignificant compared to the devastation wrought by typhus fever. Smallpox, yellow fever, membranous croup, malaria are all considered in a similar manner, showing the effect of each on world transformations. The final chapter, "The Worst Plague of All," describes the ravages of syphilis with many interesting historical references to its existence among kings and other potentates as well as the common people.

SURGERY: QUEEN OF THE ARTS, and Other Papers and Addresses. By William D. Haggard, M.D., F.A.C.S., D.C.L., Nashville, Tennessee. Professor of Clinical Surgery, Vanderbilt University School of Medicine, etc. With Foreword by William J. Mayo. 389 pages with 41 illustrations. Cloth, $5.50 net. Philadelphia and London: W. B. Saunders Company, 1935.

This book presents a collection of papers and essays by one of the distinguished and leading surgeons of the day. They pertain to a variety of topics. Some are historical, such as "The Background of the American Surgeon" and the "Romance of Medicine." Interesting discussions of surgical practice are noted in "The Qualifications of the Surgeon" and "The Surgical Significance of Pain." A series of addresses on aspects of goiter and its treatment indicate the author's interest in this subject. A number of addresses are included, dealing with various phases of gastric and gallbladder diseases. The author has a fascinating and compelling style which holds the attention of the reader. Timely illustrations add to the attractiveness of the volume. One will obtain profit and pleasure from perusing this book.

THE 1935 YEAR BOOK OF PEDIATRICS. Edited by Isaac A. Abt, D.Sc., M.D. Professor of Pediatrics, Northwestern University Medical School, etc. With collaboration of Arthur F. Abt, B.S., M.D. Associate in Pediatrics, Northwestern University Medical School, etc. 520 pp. $2.25. The Year Book Publishers, Inc., Chicago.

This Year Book comes again as an outstanding contribution for the libraries of those interested in pediatric progress. The authors have prepared and included a special introductory article, entitled "Progress in Infant Feeding." This is in the form of an historical review of an interesting phase of pediatrics and is enlightening in showing how, in spite of our supposedly scientific advances, we actually know very little more about infant feeding now than was known several hundred years ago. Under the chapter, "Infectious Diseases," articles are included in condensed form which deal with the newer advances, that is, those published during the year 1935, in the immunologic aspects of diphtheria, measles, pertussis and scarlet fever. Though this book is essentially a review of pediatric literature for the past year, the reader is pleased to find that the authors have included or added in many sections editorial comments and opinions. This adds to the interest of the entire volume and gives it a continuity and a personal touch it would not otherwise have. W. B. SEELYE.

HISTORY OF THE CANADIAN MEDICAL ASSOCIATION. By H. E. MacDermot, M.D., F.R.C.P. (C) 209 pp. $2.00. Murray Printing Company, Limited, Toronto, 1935.

Canadian Medical Association was organized in 1867, although several abortive attempts had been made in previous years. It is stated that by 1893 general interest in the association sunk to a low level so that suspension of activities was contemplated. Between that time and the World War the organization became energetic and since then has been prosperous. There are chapters on medical practice before 1867 and others include various periods with a variety of information concerning activities at such times. The leaders in Canadian medicine are mentioned with illustrations of the particular work in which they were active and the distinguished services made by many of them. Early medical journals of Canada were numerous, the first appearing in Quebec in 1826. Naturally some of these were in the French language which is spoken by the readers among whom it circulated. *The Journal of the Canadian Medical Association* corresponds to the similar publication in the United States. A chapter on Canadian medical societies shows their large number, especially among the eastern provinces. British Columbia Medical Society is one of the oldest among the western provinces, having been formed in 1885. There are many interesting facts in this publication that will appeal to the readers who formerly resided in Canada or were educated in the Canadian Medical Schools.

INFANT NUTRITION. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B.S., M.D., Professor of Pediatrics, Washington University School of Medicine, etc. Second Edition. 431 pp. $4.50. The C. V. Mosby Co., St. Louis. 1935.

Some portions of the original text of this volume have been omitted. Additions and corrections have been made to bring the material abreast of the scentific research and advances in the field of infant nutrition. The chapter on vitamins has been entirely revised so that it is up to date in this rapidly developing field of medical research. The book is plainly worded and easily readable. In the reviewer's opinion it represents the most up to date and scientific exposition of the subject of infant feeding available at this time. C. L. SMITH.

A SYNOPSIS OF PHYSIOLOGY. By A. Rendle Short, B.Sc., M.D., F.R.C.S., Professor of Surgery, University of Bristol, and C. I. Ham, M.B., B.Ch., F.R.C.S. (Ed.), Late Demonstrator in Physiology to the University of Bristol. Second Edition. Edited by C. L. G. Pratt, M.Sc., M.D., Lecturer in Physiology, St. Thomas Hospital Medical School. Illustrated with colored and other Diagrams. 312 pp. $3.50. William Wood and Company, Baltimore, 1936.

The author states that physiology changes so rapidly as the result of modern research that many changes have been produced in this edition, published eight years after the first. Particularly are advances mentioned in endocrine glands, vitamins and the chemical physiology of the reproductive system. Much information is condensed by briefly mentioning the basic features of each organ under consideration and omission of unnecessary elaboration. There are chapters on the different organs, as the heart, circulation, digestive system, endocrine glands, liver, nerves, brain, etc. By the judicious use of capitals and black type the essential facts in the discussion of any subject are graphically presented to the reader. In a condensed form, one can obtain much information concerning many problems of physiology.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Vol. I, Forty-Sixth Series. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. 314 pp. $3.00. J. B. Lippincott Company, Philadelphia and Montreal, 1936.

This comprehensive review of the medical sciences contains contributions from twenty-two writers, representing leading medical colleges of this country, with contributors from Canada, Paris and London. There are important papers on medical and surgical topics. Among these is one on "Fever in Heart Disease" by J. M. Steele of New York, while Burgess Gordon of Philadelphia considers "Basal Pulmonary Tuberculosis." Daland of Philadelphia discusses "Onchocerciasis," an endemic, progressive disease prevalent in Mexico and Guatemala, whose origin is unknown but has long existed in Central America. Sezary and Barbe of Paris describe "Treatment of General Paresis with Stovarsol." Other instructive and interesting papers are listed.

SYNOPSIS OF CLINICAL LABORATORY METHODS. By W. E. Bray, B.A., M.D., Professor of Clinical Pathology, University of Virginia, etc. Thirty-two Text Illustrations, 11 Color Plates. 324 pp. $3.75. The C. V. Mosby Company, St. Louis, 1936.

According to the author, clinical laboratory work in recent years has taken an important place in the practice of modern medicine. The demand for laboratory tests, particularly for the purpose of diagnosis, has inspired the production of this synopsis of standard procedures. The condensed, detailed technical methods, combined with attractive illustrations, will prove useful to the laboratory worker. Nothing superfluous is introduced, working technical procedures being arranged in a convenient manner for ready application to a given piece of work.

CLINICAL MISCELLANY. Volume 2, 1935. The Mary Imogene Bassett Hospital, Cooperstown, New York. 218 pp. $3.00. Charles C. Thomas, Springfield, Ill., and Baltimore.

During the past generation have developed group and clinical forms of medical practice, represented in most cities of the country. The assembly of specialists, laboratory technicians and clinical investigators has led to the production of many papers describing with exactness the modern scientific methods of treatment. This volume offers twenty papers under the authorship of nine contributors connected with one hospital. A few of the subjects dealt with are "Cholelithiasis and Cholecystitis in Childhood," "Idiopathic Stricture of Urethra with Acute and Chronic Cystitis Simulating Vesical Tumor," "Postvaccinal Polyneuritis," "Idiopathic Aplastic Anemia." These and other subjects make interesting reading for one who wishes to peruse a variety of clinical topics.

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RESPONSE OF THE BODY TO INFECTION; IMMUNITY AND FEVER*

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CHICAGO, ILL.

It has been suggested that the phenomena usually discussed under the term "immunity" deserve a better label, since this subject is taken to include all those mechanisms by which the body protects itself against infective disease. The immunologist is, therefore, properly interested in the mechanism and significance of fever, which we shall discuss under a separate heading since the processes by which a rise in temperature is brought about consist of physiologic readjustments bearing little relation to other aspects of immunity.

A large part of our resistance to pathogenic organisms unquestionably depends upon the barriers which are placed in the way of the entrance of bacteria into the body. This first line of defense, consisting of the skin, the mucous membranes of the gastrointestinal and genital tracts, the respiratory passages, and the conjunctivae, not only mechanically hinders the entrance of bacteria into the tissues, but also appears to be able to destroy at least certain species of organisms which may come in contact with these surfaces.

MECHANISMS PREVENTING ACCESS OF BACTERIA TO TISSUES

It seems clear that the skin acts not only as an envelope which is impermeable to bacteria, but that it possesses to some extent the property of being self-disinfecting. It has been shown that even hemolytic streptococci may in some cases be rapidly killed when placed on the normal skin of the hand. There are marked variations in the ability of this autosterilizing mechanism to dispose of various bacterial species, however, as is indicated by the known fact that certain organisms are normal inhabitants of the skin surface. While streptococci, and many bacilli are rapidly removed (B. coli or typhosum cannot be recovered from the palmar surface of the clean hand ten minutes after application), staph. aureus may remain for long periods, although showing a marked reduction in numbers. This property is largely dependent on the cleanliness of the skin. It has been shown to disappear rapidly after death. The exact mechanism by which bacteria are removed is not understood, although it has been suggested that the chemical properties of the sweat are responsible.

Many of the bacteria gaining access to the mouth remain adherent to the mucus of the lining epithelium for considerable periods of time. Experiments with inert carbon particles and later with viable organisms (Bloomfield) have thrown light upon their fate. The flow of saliva sweeps them backward to the base of the tongue, whence they are periodically removed by swallowing. Certain types are able to colonize successfully in the mouth, and form the characteristic local flora. Those unable to implant themselves are removed as described, almost complete removal being effected within about thirty minutes.

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*From the Department of Physiology and Pharmacology, Northwestern University Medical School.

*Read before the Forty-third Annual Meeting of Idaho State Medical Association, Boise, Ida., Sept. 9-13, 1935.

Large numbers of bacteria are undoubtedly destroyed in the stomach by the acid gastric secretion. It has been noted in our laboratory that totally gastrectomized dogs are much more susceptible to infectious diarrheas than are normal animals, and temporary lack of protective gastric acidity is thought to be responsible for many of the summer diarrheas in man. It has been shown that alkalinization of the gastric contents permits viable bacteria which are administered orally to reach the colon. When the gastric secretion is not thus neutralized, bacteria similarly introduced cannot be recovered in the large bowel. It is certainly only under exceptional conditions that bacteria may penetrate the bowel wall and reach the blood stream or the lymphatics. Recent studies have shown, however, that when a suspension of bacteria in alkalinized egg-white or alkalinized bile is introduced into the intestines, considerable numbers of organisms appear in the lymphatic drainage.

It is well known that the external surfaces of the body, including the lumen of the gastrointestinal tract, the nose and throat, and the genital passages, are the habitations of numerous types of bacteria of which some are pathogenic. Meningococci, pneumococci and others are common inhabitants of the nasopharynx. It is only when the "first line of defense" breaks down and permits invasion of the tissues by these organisms that disease results. Let us now examine the mechanisms by which the body deals with such invasions.

CELLULAR REACTIONS TO THE PRESENCE OF BACTERIA. RETICULOENDOTHELIAL SYSTEM.

We shall not concern ourselves with the walling-off processes by which the body may deal with large and localized accumulations of bacteria (abscess formation), but rather with the reactions of the cells of normal animals to the presence of organisms prior to any attempt at encapsulation by connective tissue. Unquestionably the cellular defenses of the body are primarily concerned in resistance to bacterial invasions to the tissues. The early, and in many ways still the most enlightening, studies in immunity concerned the development in the blood plasma of immune bodies or antibodies, which possess distinctive actions upon bacteria and bacterial toxins. The production of antibodies, which might be termed "humoral" as contrasted with cellular immunity, is the major and perhaps the only means for combatting the presence of toxins, and rendering them inactive. Such humoral mechanisms seem to be of relatively little importance when bacteria which do not produce toxins multiply in the tissues; here the phagocytic cells, especially those of the reticuloendothelial system, play the major role. The enlargement of the spleen in typhoid fever or malaria is indicative of the part played by this organ, when pathogenic forms gain entrance to the blood; it is a part of the reticuloendothelial structure and as such is concerned in the removal of the organisms.

The fate of bacteria in the tissues is in many respects similar to that of any inert foreign particles of small size. When injected intravenously, such material, be it bacteria, carbon particles, carmine particles or other similar matter, tends to be taken up primarily and rapidly by the cells of the reticuloendothelial system. This system, in its entirety, is composed of cells called histiocytes or macrophages. Some of these cells are fixed to the capillary endothelium of the liver, spleen, lymph glands and bone marrow. Other histiocytes possess no permanent attachment but are found free in the tissues or the blood. These cells may become loaded with foreign matter (bacteria, carbon particles, etc.) which has been injected intravenously. It is interesting to recall Tatum's recent observation that, whereas the spirochetes of syphilis are not subject to phagocytosis by the histiocytes in the body of the normal animal, after an injection of neoarsphenamine phagocytosis by these cells of the reticuloendothelial system is greatly stimulated and the spirochetes are found in large number within the Kupfer cells of the liver, the histiocytes of the spleen and elsewhere in the reticuloendothelial system. The organic arsenic compounds seem to sensitize the spirochetes so that they are more readily phagocytized. This illustrates the differences in histiocyte behavior relative to the type of foreign matter with which these cells have to deal.

The polymorphonuclear leucocytes of the blood also become active when foreign matter reaches the blood stream; they appear to play a more prominent role in the removal of bacteria than in the disposal of such material as carbon particles, although their behavior is qualitatively similar in both cases. The polymorphonuclear cells accumulate in the capillaries of the lung, sometimes in such numbers that an actual leucopenia may occur in the peripheral circulating blood. Phagocytosis is carried out by the neutrophiles thus accumulated in the lung, and after the circulating blood has been freed of foreign matter these cells in turn appear to be engulfed by the fixed histiocytes of the reticuloendothelial system. A third mechanism which favors the removal of bacteria and foreign particles is the agglutination which they undergo in the blood stream. A certain degree of agglutination may take place in the absence of specific agglutinins, since carbon particles as well as bacteria may be so clumped. The aggregations commonly contain blood platelets which are probably only adventitious inclusions.

While the mechanisms described above are adequate for the removal of inert matter and nonpathogenic bacteria, a complicating factor is introduced when the organisms which enter the blood stream are highly virulent and capable of rapid multiplication. Septicemia and death occur when the organisms present in the blood stream are capable of multiplying more rapidly than they can be dealt with by the defense mechanisms of the host, or when they can combat the defenses marshalled against them. Simple removal from the circulation is apparently no guarantee of the death of the organisms. It has been shown repeatedly that phagocytized bacteria are not necessarily killed by this process. Viable organisms have been recovered from the spleen and liver weeks or months after their intravenous injection and prompt removal from the circulation. This is perhaps only a chance occurrence, and we may assume that most ingested organisms are finally disposed of, but we must not lose sight of the possibility that they may remain alive and potentially active. The macrophages are apparently more active than the neutrophiles in actually destroying bacteria. There is some evidence that virulent or resistant organisms engulfed by the neutrophiles may actually be spread and infection set up in distant tissues when these cells migrate after having phagocytized such organisms.

When bacteria gain entrance to other tissues they are dealt with in a similar manner; the reaction within the peritoneum is particularly interesting and will serve to illustrate the response to bacteria introduced elsewhere than into the blood stream. Following intraperitoneal injection, there is a rapid accumulation of neutrophiles within the peritoneal cavity, and at least in many instances the bacteria tend to become clumped and, therefore, more easily phagocyted. There is a tendency for the clumps of bacteria as well as the phagocytes to accumulate on the surface of the omentum. As the reaction proceeds macrophages (histiocytes) make their appearance and ingest not only the bacteria but also the neutrophiles which have become loaded with organisms. The entire process of removal may required four to seven days. Drainage by way of peritoneal lymphatics is extremely active, and many organisms pass out by way of the lymphatic channels in the diaphragm. It has been noted that bacteria appear in the blood stream within a few minutes after their introduction into the peritoneum, having been taken up by the lymphatics and carried to the vascular system, where they are dealt with as previously described.

The reaction of immunized animals to the parenteral introduction of bacteria is similar to that of the nonimmune, the difference being of degree and not of kind. Topley has said: "An immunized animal behaves toward a virulent strain of a particular pathogenic bacterium in the same way as a normal animal behaves toward an avirulent, or slightly virulent, strain of the same bacterial species." Where the nonimmune animal is overwhelmed by the multiplication of the pathogenic organisms, the effectiveness of the mechanisms noted above has been increased in the immunized individual and prompt removal occurs. This is true whether the immunity is active, such as that produced by vaccination, or has been passively conferred by the injection of immune serum.

How may we aid the cellular defense mechanisms of the body? The means at our disposal may be divided into specific and nonspecific. The specific means consist simply of active or passive immunization against the infecting organism by the injection of a vaccine or an antiserum. Nonspecific procedures are numerous and highly important in treatment; they may be classified as:

1. General supportive and dietary measures which maintain the nutritional environment of the cells.

2. The promotion of an adequate blood supply. The blood supply which is adequate to the normal tissue may not be sufficient when the cells are called on to combat infection. The application of heat improves the local circulation. In this connection such pumping devices as are now being employed in Buerger's disease should be noted.

3. Adequate drainage. For example, mucous secretion in a draining sinus is helpful, but the same mucous secretion may become a culture medium for bacteria if the sinus does not drain.

4. The removal of dead tissue and blood clots. The importance of removing clotted blood from the abdomen after surgery or from other wounds can hardly be overemphasized; free clots form natural breeding grounds for organisms and serve no useful purpose.

5. Rest of the part. Partly by decreasing lymphatic drainage helps to localize the infection.

6. Promoting the local accumulation of phagocytic cells. Wet dressings attract such cells. It has been shown that the intraabdominal injection of any foreign substance (Gay) causes an accumulation of phagocytes as noted above. Resistance of peritoneal cavity to infection is greatly increased if such an injection be given three to four days prior to abdominal operation. Therefore, Steinberg and others practice intraabdominal injection of B. coli vacine; this is actually nonspecific therapy since any other foreign material will act similarly.

GENERAL CONSIDERATIONS OF HUMORAL DEFENSE MECHANISMS

When an infectious disease is present the body is invaded by microorganisms which are in part composed of proteins foreign to the body. Our knowledge of bodily reactions is most complete with regard to the responses to the presence of such proteins, which act as antigens and induce the formation of antibodies. It has long been known that any protein, when introduced parenterally, gives rise to a specific antibody which reacts with the injected protein but with no other substance. Antigen and antibody may, in fact, be defined on the basis of their attributes, an antigen being that which on injection causes the production of a specific antibody that reacts with the original antigen, an antibody being a substance produced by the administration of an antigen and which reacts specifically with it. All vaccines act as antigens, since they are either killed or attenuated bacteria or bacterial toxins. Immune sera or antisera, on the other hand, are simply concentrated sera from animals which have received frequent doses of vaccine so that the sera contain high concentrations of antibodies.

Since a bacterium contains more than one type of protein, a number of antibodies will be produced in response to the injection of a vaccine or the presence of an infection. The variety of antibodies so formed will depend upon the variety of proteins in the organism. It has been found that the proteins of the flagellae or capsule differ from those in the bacterial cell. Antibodies acting on the flagellae are capable of producing agglutination of bacteria, but will not lead to lysis or increase the extent to which the bacteria may be phagocytized. Antibodies which are active against the antigens situated at the surface of the cell, however, will bring about lysis and will promote phagocytosis by the neutrophiles, as well as producing agglutination. The antibodies developed against the antigens present in the bacterial cell are, therefore, believed to be of more significance for the protection of the body than those which act against antigens present in the flagellae.

Exotoxins and endotoxins as antigens. Bacteria do not produce morbid symptoms in the diseased animal merely by their presence; we can introduce inert particles of similar size in large numbers with no untoward results. The symptoms present in infectious diseases are without question due to the presence of toxins produced by the bacterial cells. Such toxins may be divided into two classes: (1) exotoxins, which are liberated by living organisms whether they are grown in a culture medium or are multiplying in the body; and (2) endotoxins which are contained in the cell body and are not liberated by the living organism, but appear to be released only when the cell is broken down. Exotoxin production is characteristic of such organisms as the tetanus or diphtheria bacilli, which may produce disease and death simply by multiplying in a restricted area and liberating their exotoxins. Such organisms as pneumococci or gonococci produce little or no exotoxin, but contain endotoxins in their cell bodies. They must invade and multiply in vital regions in order to produce death. As a general rule the amount of exotoxin required to produce death in experimental animals is far smaller than the amount of endotoxin needed to kill.

A great variety of antitoxic sera have been presented to the profession. These are almost without exception sera containing antibodies that have been developed against exotoxins, since antiendotoxins have been found difficult of production and unsatisfactory in application. It is interesting that a relatively low concentration of antitoxin in the circulating blood appears adequate for protection against disease caused by exotoxin-producing organisms. The toxin is neutralized before it reaches the susceptible cells. But if the production of antitoxin by the body, or the administration of antitoxin as a therapeutic measure, is delayed until the toxin-producing organisms have multiplied and effective amounts of toxin have been carried by the blood to the cells, the protectiveness of the antitoxin is much reduced. We all know that the early administration of antitoxin in diphtheria is far more effective than the later injection of larger amounts. Once the toxin has reached and affected the cells of the body, antitoxin is relatively powerless.

When bacteria are not only toxin-producing but invasive as well, we may expect that the protection afforded by antitoxin will depend upon the degree of invasion occurring in the particular individual. This is borne out by experience. In scarlet fever, where the multiplication of the hemolytic streptococci causing the disease is ordinarily limited to the throat, antitoxin commonly affords protection against the systemic manifestations of the disease that result from the absorption of the toxin but not against the local lesion in the throat. But in spite of antitoxin the same organism may prove rapidly fatal, when it gains entrance to the body and produces a septicemia.

Antitoxic immunity is far more effective than antibacterial immunity, the final result depending (provided adequate antitoxin be supplied in time) upon the ability of the organisms to invade and multiply within the tissues.

Mechanisms of antibody production. We commonly refer to the antibodies which we find in the blood of immune individuals as lysins, agglutinins, opsonins or precipitins, depending upon whether they act to dissolve, clump or promote phagocytosis of cells or precipitate foreign proteins. Until relatively recent years the individuality of each of these antibodies was generally accepted. But our present evidence indicates strongly that the body produces only one antibody in response to the presence of a single antigen, and that the reaction of the antibody upon the antigen or the cell containing it (that is whether it dissolves, clumps, etc.), depends upon factors affecting the mode of action of the one antigen produced. If antibodies are developed against a toxin, neutralization will result; if against the proteins of the bacterial flagellae, the organisms will be agglutinated; and if against the proteins of the cell body, both agglutination and lysis will probably occur. In the light of this so-called "unitarian hypothesis" we need not consider separately the development of the various phases of antibody activity.

There is reason for believing that the integrity of the reticuloendothelial system is essential for the normal formation of antibodies. It is possible to depress the function of this system by the intravenous injection of large quantities of finely divided matter such as India ink or colloidal iron. When such a reticuloendothelial blockade is established, the degree of antibody formation produced by the injection of a suitable antigen is greatly reduced and may be almost abolished. But we cannot accept such findings as conclusive evidence that the antibodies themselves are formed in the cells of the reticuloendothelial system, since the activity of this system may be but one step in the progress of antibody production. Since splenectomy during the process of antibody production appears to lower the concentration of the antibodies, we may regard the evidence for the primacy of the reticuloendothelial system as highly suggestive.

The time relations between antigen injection or the appearance of infection and the production of antibodies is of considerable practical significance. Considering first an individual that has never previously had occasion to develop antibodies against a particular type of bacterium, we find that for the first few days they reach a maximum in the blood and thereafter fall rather rapidly to a low level. The larger the dosage, the greater the antibody production up to a certain point, where a further increase in dosage causes but little greater formation of antibodies. Commercial vaccines in most cases are so adjusted that the response to a single injection of the usual dose is near the maximum, and little can be gained by larger dosage. Although little is to be gained by doubling or tripling the usual dose for a single injection, the response to repeated injections of ordinary doses is very striking. Similarly, the response of an individual who has previously been injected with the same vaccine is commonly greater and longer sustained than that of the previously uninoculated person. Much is to be gained, therefore, by repeated injections even if widely spaced, but little by increasing the size of the single dose.

A feature of the antibody response which is significant in the practice of vaccination is the so-called negative phase. In an individual who has previously received a similar vaccine and, therefore, possesses antibodies circulating in the blood, the first effect of an injection is to decrease the antibody content. The resistance of the patient is, therefore, temporarily lowered. The injected organisms combine with the circulating antibody and reduce its concentration immediately, while there is a lag in the formation of new antibody as the result of the injection. One should consider this factor when immunizing patients in the presence of an epidemic, and especial precautions should be taken to avoid exposure during the course of injections and for at least two weeks following the last administration of vaccine or toxin-antitoxin.

Of further practical importance is the fate of the antibodies injected in the process of passive immunization with specific antisera. If administered intravenously the concentration in the blood reaches its maximum immediately, but falls off with corresponding rapidity. After subcutaneous or intramuscular injection the maximum concentration of antibody in the blood may not be attained for two or three days, but may remain elevated somewhat longer than when intravenous injection has been employed. Since the antibodies are presumably proteins, and are known to be associated with the globulin fraction of the serum protein, the previous experience of the recipient with regard to the particular type of immune serum should influence the fate of the antiserum after its injection for the purpose of passive immunization. This has been found to be the case. An animal sensitized to horse serum and later injected with diphtheria antitoxin prepared by immunization of the horse, disposes of the antitoxin far more rapidly than does a normal animal. This fact should be borne in mind when tetanus antitoxin is administered to individuals who are found to be sensitive to horse serum. The passive immunity thus conferred, even after appropriate desensitization, presumably lasts for a definitely shorter period than in the nonsensitive individual, and if there is presumed to be serious risk of infection with tetanus bacilli, a second injection of antitoxin about one week after the injury should be considered.

(To be concluded)

SURGICAL TREATMENT OF TUMORS OF THE POSTERIOR FOSSA*

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It has been only a few years since the surgical treatment of tumors of the posterior fossa of the brain was fraught with a very grave operative mortality. There is no field in brain surgery which illustrates more clearly the tremendous advances that neurosurgery have made in the past decade. It has not been long since the operative mortality in neoplastic lesions of the posterior fossa approached fifty per cent in the hands of most neurosurgeons. An exception to this rule was in the case of cerebellopontine angle tumors, and even in these cases the mortality rate was very high.

Many factors have contributed to the lowering of mortality and morbidity in the treatment of tumors of the posterior fossa. It is true that accurate diagnosis and localization of lesions have played an important part in this picture. However, the greatest contributing factors are those which primarily concern refinements of surgical technic.

PRELIMINARY VENTRICULAR DRAINAGE

For many years it has been customary and even essential to tap the lateral ventricle before opening the dura when dealing with lesions of the posterior fossa. The usual procedure was to make the exposure of as much of the posterior fossa as was necessary, removing the requisite amount of bone and the posterior arch of the atlas. At this stage a trephine opening was made above the tentorium and a silver tube placed in the ventricle for drainage and left there during the course of the operation. It was ordinarily removed at its completion.

This was done because neurosurgeons had found that, unless a ventricular tap was done, there would be tremendous herniation of the cerebellum upon opening the dura. If, on the other hand, a ventricular tap was done, the tension in the posterior fossa was immediately relieved and the dura could be opened safely without herniation and consequent damage to the cerebellar lobes.

Five or six years ago Swift, Dickerson and myself adopted the procedure of doing a preliminary ventricular tap twenty-four to forty-eight hours preceding the main operative procedure. Of all the factors contributing to the reduction of operative mortality this is felt to be the most important.

The rationale of this procedure is evident. Previous to its adoption the following train of events was quite common. During the course of a cerebellar operation the ventricle would be drained, resulting in a very rapid decompression of the ventricular system. Upon completion of the operation with the removal of the tube draining the ventricle there would be a rapid reformation of the ventricular fluid and an equally rapid increase of intraventricular pressure. The sudden removal of a large quantity of ventricular fluid, under markedly increased pressure, merely served to stimulate the choroid plexus to a more rapid formation of cerebrospinal fluid and, consequently, within a few hours the intraventricular pressure would become as great or greater than it had been previous to the operation, thus in effect producing an acute hydrocephalus. Repeated ventricular taps frequently became necessary, and unfortunately too often sudden death would occur before the surgeon could relieve pressure by ventricular tap.

Since adoption of preliminary ventricular drainage the procedure and results are definitely modified. From twenty-four to forty-eight hours before the operation a trephine opening is made in the skull either posteriorly or anteriorly and a silver tube is placed in the ventricle. This may fulfill a

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* Read before Annual Meeting of North Pacific Surgical Society, Portland, Ore., Dec. 6, 1935.

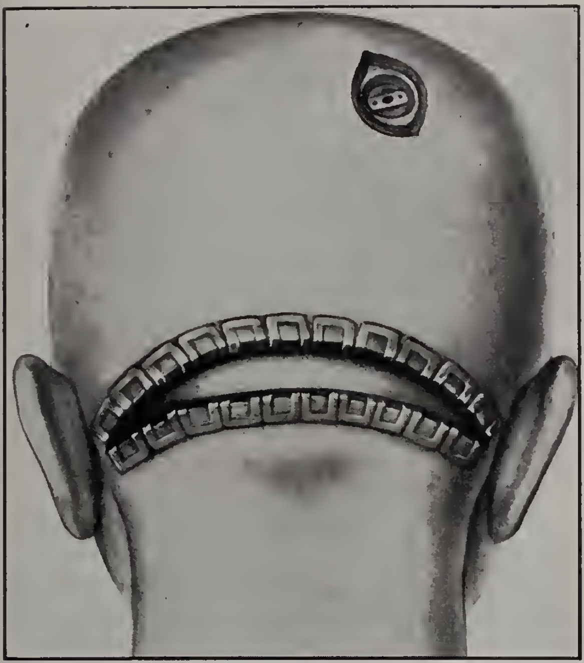

Fig. 1. Silver tube in ventricle for drainage. Scalp incision extends from mastoid to mastoid with skin clips for hemostasis.

double purpose as frequently it is necessary to do ventriculography to determine the location of the tumor. If the ventriculograms prove the tumor to be in the posterior fossa, the silver tube is allowed to remain in place (fig. 1).

If ventriculography is not done, the same procedure is followed without the injection of air. The tube is allowed to remain in place and the scalp is closed over it. This allows the excess ventricular fluid to drain under the scalp where it can be readily absorbed. A gradual decompression is obtained which prevents the onset of acute hydrocephalus and acute increased intracranial pressure.

In our early cases the tube was left in place from one to four days, but since then we have found that twenty-four to forty-eight hours is the optimal time. It was formerly customary to remove the tube upon completion of the operation but this presented somewhat the same difficulties as the older method. By experience we have learned that the tube should be left in place from twenty-four to forty-eight hours, or even longer, after the operation. This method alone has contributed to a tremendous decrease in the mortality rate.

SURGICAL TECHNIC

There are several factors in surgical technic which contribute further to our better results.

For years it was customary to use the old crossbow incision which consists of an incision from mastoid to mastoid, supplemented by a vertical midline incision four or five inches long, extending downward in the neck. This vertical incision was frequently accompanied by a tremendous amount of bleeding and trauma of much tissue, and at times the patient would be approaching shock before all of the necessary dissection of soft tissue was completed.

It has been found that the vertical incision in the neck is unnecessary. An arched incision from mastoid to mastoid, a little lower than the old crossbow incision, makes it possible to turn down a flap including the muscles of the neck, exposing the posterior arch of the atlas which may be readily removed (fig. 2). If the dissection is done subperiosteally and the muscles turned down en masse, very little bleeding is encountered and ligation of the occipital vessels on each side produces a comparatively bloodless field. Let us again emphasize the fact that the dissection must be subperiosteal, otherwise a great deal of bleeding is apt to occur. This method not only saves damage to tissue structures and lessens bleeding, but also is much more rapid, therefore contributing greatly to safety which must be considered of primary importance.

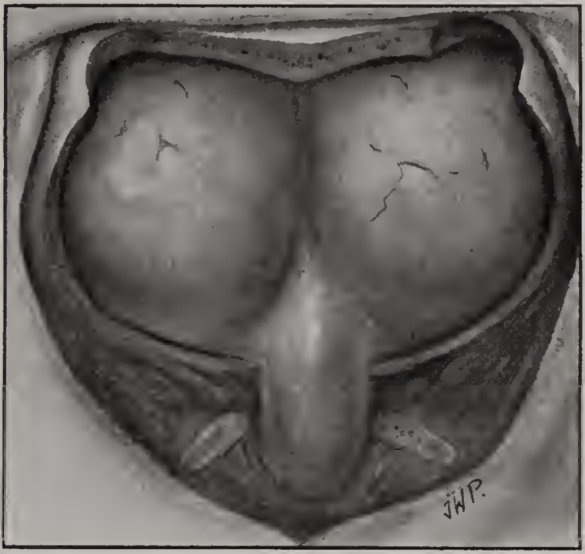

Fig. 2. Subperiosteal flap has been turned down, bone removed over cerebellar lobes and foramen magnum widely opened. Posterior arch of atlas been removed.

Another time-saving factor is the use of clips for hemostasis of the scalp. There are two main types of clips in use; the Andrews type as adopted by Swift, and Adson's modification of this clip (fig. 3). Both are very satisfactory. They do away with the dozens of hemostats so commonly used, the application of which is not only time-consuming, but whose presence in the field offer distinct disadvantages to the surgeon.

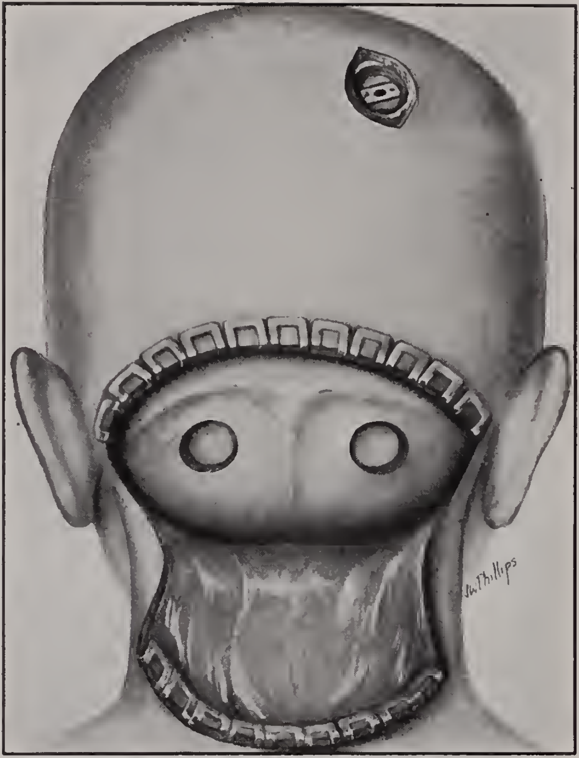

Fig. 3. Shows silver tube remaining in ventricle. Subperiosteal flap has been turned down to expose foramen magnum. This also illustrates the use of skin clips.

The use of the electrosurgical unit also contributes to speed of operation. Bleeding points which would require the time-consuming use of many ties and sutures may be rapidly dealt with by electrocoagulation.

Any brain operation requiring more than two and one-half or three hours should be divided into stages. While we realize that this statement does not agree with the practice of all neurosurgeons, we do feel that it has served as a very important factor in the reduction of our operative mortality.

At the time the necessary soft tissue and bone work has been completed and before opening the dura or just after opening it, before dealing with the lesion we carefully check the patient's condition. If over two hours have elapsed and it is apparent that considerable more time will be necessary in order to complete the removal of the lesion, we ordinarily stop, close the wound, and allow the patient two to five days to recover from the operation, leaving the actual removal of the tumor for a second stage. Furthermore, at the first sign of shock or definite change for the worse in the patient's condition, transfusion is performed. If this does not succeed in greatly improving the patient's condition, operation is quickly terminated rather than risk proceeding further.

If this has happened, when the operation is resumed a few days later we almost routinely start transfusion immediately rather than wait for a change which is so apt to occur.

Many times an intravenous needle is inserted at the beginning of the operation, a donor is ready, and at the first sign of trouble, transfusion is immediately performed. Almost invariably the transfusion is given at the time of the surgical attack upon the lesion itself rather than waiting for an emergency to arise when the time consumed incident to obtaining the blood and inserting the needle may mean the difference between life and death. Blood transfusions used in this manner have contributed greatly in the reduction of mortality.

The most frequently encountered lesions of the posterior fossa include tumors of the fourth ventricle and vermis, cerebellopontine angle tumors, tumors of the cerebellar lobes and cerebellar cysts. Pontile tumors, of course, are hopeless affairs and will not be considered.

CEREBELLOPONTINE ANGLE TUMORS

Tumors of the angle have long been quite successfully treated. There is some difference of opinion as to whether they should be removed in their entirety or whether the capsule should be split and the tumor curetted and removed subtotally. It has been stated that it is not difficult to accomplish total removal of this lesion without damage to the facial and other cranial nerves. While this is no doubt possible in many cases, it must necessarily entail a tremendous risk of damage to cranial nerves as some of them, particularly the facial nerve, are frequently very intimately associated with the capsule of the acoustic tumor, complete removal of which must frequently result in permanent facial paralysis. Since it is undoubtedly true that a subtotal intracapsular removal can be accomplished with much less risk of damage to the facial nerve and with equally good results, it is probably the operation of choice. This is true by virtue of the fact that these are very slow growing tumors with very poor blood supply, and when the greater portion of the tumor is once removed, it does not recur for years. if at all (fig. 4).

One procedure which may be used to aid exposure and excision of these tumors is the removal of an elliptical segment of the cerebellum immediately overlying the tumor. This greatly improves the exposure and facilitates the attack on the lesion. It also lessens trauma to the rest of the cerebellar lobe involved and the patients experience no dif-

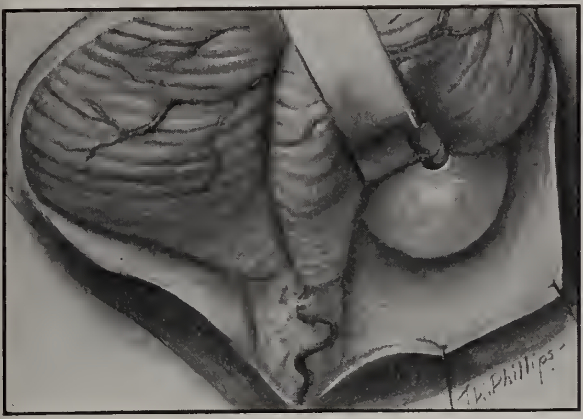

Fig. 4. Dura is widely opened. Cerebellum is retracted medially, exposing large tumor of right cerebellopontine angle (acoustic tumor) which is removed subtotally by curet and spoon forceps.

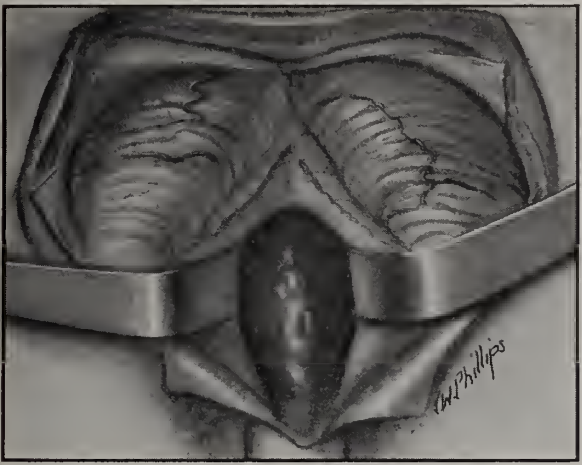

Fig. 5. Dura has been opened widely and down onto spinal canal. The vermis has been split in midline and retracted, exposing large medulloblastoma of fourth ventricle.

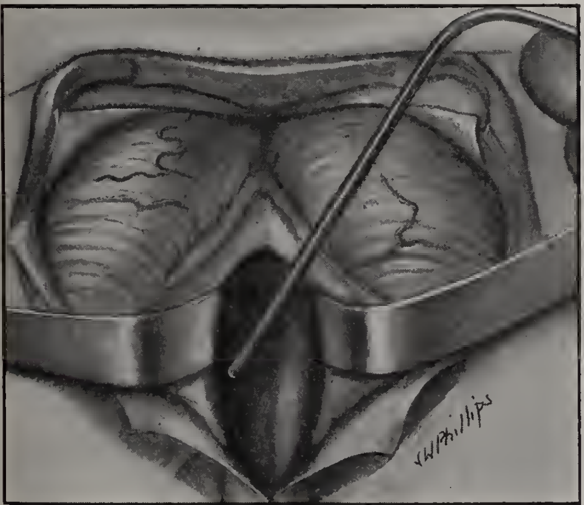

Fig. 6. Illustrating suction removal of tumors. Almost entire tumor illustrated in fig. 5 has been removed by suction, the vermis having been split and retracted.

ficulty as the result of removing this portion of the cerebellum.

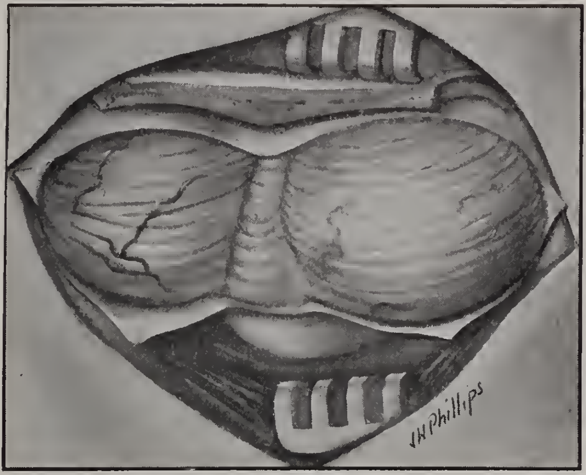

Fig. 7. Illustrating tumor of right cerebellar lobe. The vermis is displaced to left. This tumor can be treated either by lobectomy suction removal or piecemeal removal with electrosurgical loop. (Courtesy of G. W. Swift.)

FOURTH VENTRICLE TUMORS

Fourth ventricle tumors are among our most favorable lesions. Many of them are medulla blastomas which are highly radiosensitive. Some neurosurgeons do very little with the lesion itself, merely a wide decompression and treat with roentgen therapy. Fay supplements this procedure by incising the tentorial ring, thus relieving pressure on the brain stem. It is our feeling that we can accomplish the same result by a more complete removal of the tumor rather than cutting the tentorial ring. We first saw Elsberg apply a principle which has aided in many cases, namely, the aspiration of these soft types of tumor. Using good strong suction with glass tubes, it is possible to do almost a complete removal. The procedure is facilitated by a median incision of the vermis to allow greater exposure of the fourth ventricle, using electrocoagulation for the blood vessels and the electrosurgical knife for incising the vermis (figs. 5 and 6).

TUMORS OF THE CEREBELLUM

Tumors of the cerebellum proper are treated most advantageously by radical resection of the involved portion of the cerebellum, frequently a lobectomy. Since the introduction of electrosurgical units, this procedure has been greatly lessened in formidability and becomes comparatively safe. The patients do very well, even though there has been complete removal of a cerebellar lobe (fig. 7).

CYSTS OF THE CEREBELLUM

Pure cysts of the cerebellum are relatively uncommon, but do occur. There is usually a mural nodule of tumor present, and for this reason we routinely inspect the cavity and remove the tumor,

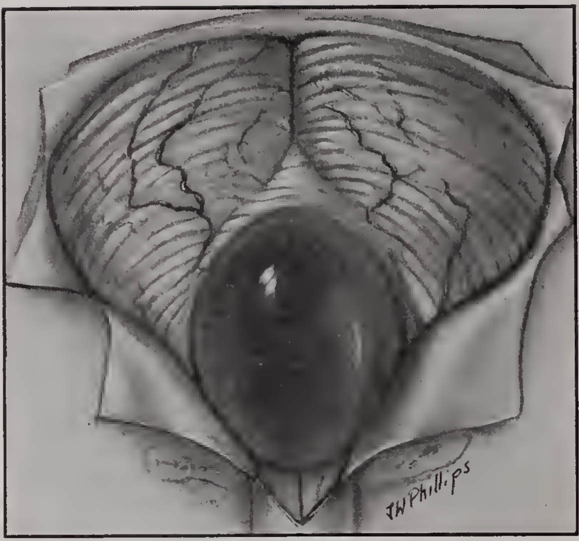

Fig. 8. Showing enormous cyst of fourth ventricle. After cyst had been aspirated and greater portion of sac removed entire fourth ventricle and aqueduct of Sylvius were visualized.

if it is found. If no nodule is present the cyst wall is either thoroughly coagulated or as much as possible of it is removed to avoid reformation of the cyst (fig. 8).

SUMMARY

Among the factors which contribute to a marked diminution in the mortality rate following the surgical treatment of tumors of the posterior fossa are preliminary ventricular drainage, the use of a single incision from mastoid to mastoid, hemostasis by means of skin clips, multiple short operations rather than single long operations, blood transfusions, the electrosurgical unit and suction removal of tumors. Probably the two most important factors are preliminary ventricular drainage and rapid operations with accurate hemostasis. Since adopting the various procedures mentioned, the mortality following surgical treatment of tumors of the posterior fossa has been greatly lessened.

CONCLUSION

Owing to many refinements of technic, tumors of the posterior fossa may be surgically treated very satisfactorily with a remarkably low mortality.

Treatment of Pernicious Anemia With Autolyzed Liver Concentrate. Theodore G. Klumpp, New Haven, Conn. (Journal A.M.A., April 11, 1936), studied the therapeutic potency of autolyzed liver concentrate-Squibb for a period of two years in the wards and in the hematology clinic of the New Haven Hospital. He found that autolyzed liver concentrate is effective in the initial and maintenance treatment of addisonian anemia. Autolyzed liver concentrate is more potent than liver extract-Lilly derived from the same amounts of liver. In the initial treatment of pernicious anemia, maximal effects have been obtained from a daily dose of autolyzed liver concentrate derived from between 150 and 200 Gm. of liver. For maintenance treatment a dose of from 1 to 8 teaspoonsful daily, on the average 3 teaspoonsful, have been found adequate.

ROENTGEN THERAPY IN MALIGNANCY

ITS INDICATIONS AND LIMITATIONS *

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AND
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Physicians in all branches of medicine are confronted, from time to time, with the problem of determining the proper method of treatment for the varied types of malignancy that come to their attention. There being some confusion as to the merits of the various methods, it would seem that a short discussion of the subject would be in order at this time.

Many physicians are of the mind that certain cellular types of malignancy should respond to a more or less specific type of therapy. For instance, many seem to feel that carcinoma is carcinoma regardless of its physical location and should, therefore, respond to a given agency as readily in one part of the body as in another. Unfortunately, such is not the case as will be illustrated later. Even with our present very limited knowledge of cancer many of us overlook the fact that after all we are merely treating a symptom of an obscure disease, and because of this we sometimes expect the impossible from cancer therapy. Another factor which must always be kept in mind is the resistance of the individual patient to his particular malignancy. This is an extremely important matter, for without resistance no type of neoplasm can be successfully combatted. This is well illustrated by the course of malignant disease in young patients. Because of their low resistance, this type of pathology in younger patients shows rapid advancement and relatively poor response to any type of treatment, whereas the same grade of malignancy in older patients advances more slowly and responds more readily.

We believe, therefore, that the prognosis in the treatment of malignant disease must be based upon the following cardinal factors: (1) the age of the patient, (2) the type of neoplasm, (3) the location of the lesion, (4) the agency to be employed.

In order to simplify our discussion of this rather complex subject we will refrain from details of diagnosis and also from the technical factors of roentgen therapy. For the purpose of clarity we shall divide the subject into six main divisions, the first of which will be:

Division A. Malignancies that may be expected to respond to irradiation without the aid of surgery.

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* Read before the Twenty-fourth Annual Meeting of the Alumni Association University of Oregon Medical School, Portland, Oregon, March 2, 1936.

In this group may be placed skin cancers, epithelioma, squamous cell carcinoma, carcinoma of the lip, senile keratosis and leukoplakia. It is with these lesions that irradiation gives the most brilliant results, for when adequate treatment is applied, the condition shows rapid resolution with practically no recurrences and but little scarring.

Lymphosarcoma and Hodgkin's disease are distinctly nonsurgical conditions and irradiation is the only type of therapy that can be expected to result in any benefit. Clinically these two conditions can scarcely be differentiated from one another and respond to therapy in a similar way, with the exceptions that lymphosarcoma frequently develops recurrences more rapidly than does Hodgkin's disease and often terminates in an earlier death. Under roentgen therapy the average case of lymphosarcoma or Hodgkin's disease shows a rapid resolution following the first course of irradiation. There is then a quiescent period that varies from a month or so to a year or more, at the end of which time the tumors will again become visible and further treatment must then be applied. This, in turn, is followed by a quiescent period and so the cycle continues until eventually the exacerbations develop with rapid frequency, which indicates that death will soon ensue despite all treatment.

It is here that the individual resistance is very strikingly revealed. In our experience we have been able to carry a well developed case of Hodgkin's disease over a period of seven or eight years, during which time the patient was perfectly comfortable and able to carry on his work. On the other hand, another patient, a young man aged twenty-four years, showed but slight resolution and died within a few months, despite very intensive irradiation. It not infrequently happens that no visible or palpable tumors are present at the time of death, the immediate cause of the demise apparently being due to the profound toxemia. The average result of roentgen therapy in Hodgkin's disease and lymphosarcoma, however, reveals it to be a very worthwhile procedure.

Another nonsurgical disease that is best treated by irradiation is chronic leukemia. By proper application of the roentgen ray these patients may be carried on in comfort for long periods of time before the inevitable fatal termination.

Division B. Under this we shall consider malignancies that are best treated by a combination of surgery and irradiation. In this group will be found all of the operable malignancies, examples of which are carcinoma of the breast or of the uterus. Preoperative irradiation is of considerable value, if properly given and if the condition of the patient permits an interval of three to four weeks between the roentgen treatment and surgical attack. Care must be exercised in the application of the ray so that no damage may be done to the skin that might interfere with proper healing of the wound following operation. It is believed that preoperative irradiation should be directed towards limiting, if possible, the further growth of new cells and the stimulation of the fibroblasts that are to bring on fibrosis surrounding the lesion in an attempt to prevent further spread. While we believe that preoperative irradiation is of great value, we realize that it frequently "back fires," and we feel that this phase is worthy of mention.

We must not overlook the dilemma in which the patient suffering from a malignant disease finds himself. Of course he finds it difficult to believe that he has become a victim of cancer. His relatives and friends are all extremely anxious either to prove that the doctor is wrong, or to provide what they think is the best possible chance for cure. Furthermore, the public is now beginning to realize that when cancer is found, it must be attacked early. These factors must be considered in mapping out the plan for treatment.

It has been our unpleasant experience to find a considerable number of patients who have failed to return to their surgeons following the preoperative treatment. In some cases the treatment was sufficient to produce improvement to such a degree that the patient either believed himself to be cured or the original diagnosis to be wrong. Others were led to believe that the delay in the surgical attack was wrong and changed to other surgeons whose ethics permitted them to agree with the patient. Well meaning friends have been able to influence another group into believing that certain quacks would be able to cure them without the use of surgery. These experiences have been sufficient to convince us that, insofar as these patients were concerned, preoperative therapy did more harm than good. We believe that the surgeon should have a thorough understanding with his patient before suggesting this particular method.

If, following the operation, the surgeon can be sure that all of the cancerous materials have been removed, the postoperative irradiation should be directed toward stimulating fibrosis, and destructive doses should be avoided. If, however, it has not been possible to remove all of the growth or if the surrounding involved glands could not be cleanly removed, the postoperative therapy must be given in heavier doses in an effort to destroy the malignancy.

It is our practice to apply irradiation through the involved field as soon after the operation as the condition of the patient will permit. In the case of complete excision of the growth the initial dosage is moderate, in an attempt to stimulate fibroblastic action. Such a series is repeated every three months for a period of at least two years and then each six months for the third year.

It has been our observation that the cases so treated have given by far the best results. Particularly in carcinoma of the breast and of the uterus this method has secured a much higher percentage of cures than either surgery alone or those treated purely by irradiation.

Division C. The inoperable malignancies. In this group irradiation plays an important role. Frequently the cancerous lesion has been too long neglected or is so situated that surgery can offer no relief. Also the patient may be aged or be so markedly debilitated that surgical intervention is not wise. Irradiation is then the only method of treatment. In advanced cases little may be expected in the way of complete cure, but relief of pain and limitation of growth may be accomplished by irradiation, much to the comfort and benefit of the patient.

It not infrequently happens that inoperable malignancies are kept under control so that the patient may resume his work in comfort for a long period of time by the judicious use of the roentgen ray. It is not unusual to find adequately treated patients pursuing their normal vocations two, three and even five years after positive diagnosis of malignancy has been made. We have several such patients under our care at the present time.

Division D. Under this division will be considered malignancies which fail to give worthwhile response to roentgen treatment. It has been our experience that roentgen irradiation is of no value in the treatment of those lesions that are found on loosely attached mucous membrane such as occur in the oral cavity, gastrointestinal tract, vagina and bladder. It would appear to us that there are two important factors that contribute to results in irradiation therapy. The first is, of course, the destruction of the rapidly growing cells. The second factor and one that we consider to be equally important is the sclerosing effect of fibrosis in blocking the invasion of surrounding tissues. This theory is supported, clinically, by the behavior of the lesion under treatment. Such malignancies as are found growing in firm, solidly anchored tissues give us our best results, whereas the above mentioned areas, based as they are on loosely attached foundations, give practically no response at all.

By way of example we call your attention to malignancy of the uterine cervix, which responds readily and satisfactorily to irradiation, while cancer of the vaginal wall, even though it be a direct extension from this same cervical lesion, gives no appreciable response at all. A similar illustration may be found in the oral cavity. Carcinoma of the tongue reacts favorably to irradiation therapy, while malignancy in the buccal areas is apparently not affected. Our personal experience, therefore, leads us to the conclusion that roentgen therapy of these lesions growing in loosely attached membranes is not at all satisfactory. Metastases from these growths, however, are an entirely different matter and will be discussed with the following group.

Division E. Metastatic malignancy. For the most part metastatic lesions are usually inoperable, and for this reason irradiation offers the only other source of treatment. If the lesions are widespread and the patient shows the effects of marked toxemia, little or nothing can be hoped for in the way of palliation excepting possibly the relief from pain. If, however, the lesions are not too numerous and are situated in favorable areas, i.e., not in the gastrointestinal tract nor in areas discussed under division D, it is sometimes possible not only to relieve pain and disability, but greatly to prolong the patient's life.

This is especially true in metastases to bone and some of the metastatic lung tumors. We have under our observation at the present time several patients who were completely incapacitated from metastatic bone and lung lesions who were rehabilitated and have continued their regular work for three and four years. One particularly interesting case is that of a woman who entered the hospital in October, 1932, completely paralyzed from destruction of the cervical vertebrae and of the right ilium by metastatic carcinoma from the breast. This patient is not only still alive, but is carrying on her regular duties of housewife and mother. Another woman with metastatic carcinoma of the lung has carried on for over five years by roentgen therapy.

Division F. This division covers recurrent malignancy following surgery. These lesions must be treated by destructive doses and the response varies with the individuals. Many of these cases are kept under control for variable periods of time and relief from pain makes irradiation well worthwhile.

It has been the purpose of this paper to sketch, in a general way, what may be expected of roentgen therapy. We believe that, when used in its proper place, irradiation may be expected to accomplish much. All too frequently this agency has not been given early enough consideration and the patient has been deprived of its benefits until his condition has become hopeless. By the time a generalized toxemia has developed or metastases to the gastrointestinal tract, liver or pancreas have appeared it is not only unwise, but also poor practice to subject the patient to this or any other form of treatment in the hope of gaining a cure or even a palliation.

In conclusion, may we state that, if irradiation were given more careful consideration by the physician, it would in our opinion result in great benefit to the patient suffering from malignancy through the relief from suffering and the prolongation of useful life.

HOPEFUL ASPECTS OF RHEUMATISM*

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Rheumatism has long been considered a condition with a hopeless outlook. There are, notwithstanding this pessimism, a number of hopeful aspects in this frequent and widespread disease-complex. The first is a growing interest in this age-old malady on the part of the public as well as within the medical profession, an interest which brings determined study. The second of importance is the wider viewpoint which has followed upon a clarification of classification. The third follows upon a more accurate definition of the rheumatic state, and upon recognition of the fact that much is already actually known about many forms of rheumatism and about their therapeutic approach. The fourth hopeful aspect is an outgrowth of the foregoing, and is the better understanding of the role of various therapeutic measures, medical, orthopedic and physical.

The brightest side in the consideration of rheumatism is the growing interest of the medical profession in this common disease. Confronted daily by one form or another of its manifestations, the profession finally has realized the necessity of meeting its challenge instead of side-stepping it. To this end an increasing number of physicians are attempting to bring order out of rheumatic chaos, and to afford ultimate maximal relief to its multitude of sufferers. For a long time the battle has been carried on in this country by a small handful of men, but of late years these few have met and discussed their problems, and from these deliberations has evolved a society for the study of rheumatism. Presentation of results of investigation and discussion of mutual problems have stimulated those who participate in the yearly sessions and those who have followed the activities of the society at a distance. With better understanding of basic factors of rheumatism a more rational therapeutic approach has been made available, and much therapeutic chaff has been separated from grain.

In an attempt to classify the many conditions commonly acknowledged to be a part of the rheumatic state, a question must be asked, what is rheumatism? Assuredly it is not a hodge-podge of conditions. It is, however, a group of fairly well defined and fairly well understood diseases. Some of these are acute, some chronic; some are specific, some nonspecific; some are traumatic, some infectious; some are metabolic, some degenerative; some are thoroughly understood, some far from completely understood. But when one thinks of rheumatism, one is apt to limit one's thought to features or to types which are understood poorly; one, therefore, too often concludes that but little is known about rheumatism in any of its phases. This is hardly fair either to the patient or to medical knowledge, for much is known about the rheumatic group of diseases.

That rheumatism is not merely arthritis must be clearly understood at the outset. Even though arthritis is a form of rheumatism, the two terms are not synonymous and must not be used interchangeably; it is from such usage that much confusion has arisen. The term arthritis must be reserved for affections of the joint structures, whereas rheumatism is a general term for a group of conditions having in common the production of pain during movement of skeletal structures. Even the term rheumatism must confine itself to certain limits, and the most convenient simple definition is a disorder of the connective tissue structures of the body, especially muscles and joints. To obtain a better picture of the problem, one must visualize the detail of these structures. Muscles and tendons and bursae are quickly understood; individual joint structures such as articular cartilage, bone, synovial membrane, interarticular ligaments and joint capsule are more likely to be overlooked but each structure has its peculiar significance in any rheumatic condition; the connective or fibrous tissue apart from the joints may be of prime consideration in evaluating a clinical picture. Any classification must consider not only these anatomic units but also the effects on them of such exciting causes as trauma, infection, degeneration, disturbed metabolism.

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*From the Department of Medicine, University of Oregon Medical School.

Confronted by such an interplay of possibilities, it is indeed short sighted to limit one's therapeutic thoughts to the puzzling and often unanswerable question of whether a given case of rheumatism is due entirely to infection. Keeping the mind open to the many possibilities helps to hold the question of infection in its proper place, and all treatment designed to eliminate infection is immediately given its proper valuation. Just as this is true of infection, so it is true of all etiologic possibilities, and of all forms of treatment. As one looks out over this broader concept of rheumatism, individual factors can be seen in much better perspective.

Classification, then, comprehends the following factors:

1. The main etiologic cause such as trauma, specific infection, nonspecific infection, degenerative change, metabolic disturbance, neoplastic change, neurogenic change; sometimes several are contributory to the syndrome seen in a single patient.

2. The condition of the anatomic structures involved (intraarticular and extraarticular), such as the joint itself, its synovial membrane, its capsule, the tendons and muscles acting on the joint, the adjoining bursae and the diffuse regional fibrous tissue.

An attempt to describe in such detail any case of rheumatism will lead to clarification and not to confusion. With this clarification a more hopeful attitude will develop, for the possibilities of any form of treatment will be more evident. Of course, no existing classification can be entirely satisfactory, but the same criticism can be leveled at nephritis or even at pulmonary tuberculosis. Classification allows us to label conditions and, as long as everyone knows what is meant by it, a good classification is of assistance.

Arthritis, bursitis, synovitis or myositis due to trauma are quite distinct from similar states due to specific infections such as tuberculosis, gonorrhea, etc. They look different, they act differently and the end-result, untreated, is different; therefore, they are deserving of accurate diagnosis and classification. So with other forms of rheumatism, and no one should fail to visualize the condition known as atrophic (rheumatoid, proliferative) arthritis, nor should there be misunderstanding of what is indicated by the term hypertrophic (degenerative, osteo-) arthritis.

What difference should it make if a condition which is predominantly atrophic arthritis has some hypertrophic manifestations? Recognition of coexisting features adds zest, and a curb is placed upon overenthusiasm for pet therapeutic procedures. A case classifiable as specific infectious arthritis may also present features which are indistinguishable from acute rheumatic fever or even from atrophic arthritis. For that matter, streptococcic polyarthritis, in its nonsuppurative form, may include those three conditions; different strains of streptococci may be responsible for the difference, or individual host response may be the cause of the variance; quite probably both factors are at work. Recognition of such multiple points is among the encouraging signs in attempts to unravel the rheumatic state as it is presented specifically in different individuals.

Another hopeful aspect is that so much is known about rheumatism already and, not only is so much known about it, but so much is being done for it. Conversely, much has been learned, by trial and error, about the worthlessness or insignificance of many forms of treatment. Every physician can look with gratification upon the satisfactory or excellent results he has had with patients presenting one type of rheumatism or another. Does he not, however, look with too much discouragement upon other cases of similar type in which his results were not good, even though he used similar forms of treatment? The trouble may lie, not in the therapeutic principle behind the treatment, but in the misapplication of the principle by too much or even insufficient stress upon it; or he may have failed to evaluate the case in all its aspects, and have treated only one of its major phases. It is entirely possible that he was confronted by a problem in individual reaction or resistance. Such factors do not mean hopelessness. They do mean, however, that all angles must be evaluated and expected results determined before treatment is instituted.

It would be a grave error to treat a case of tuberculous arthritis as one would gonorrheal arthritis, and one would expect a therapeutic failure from such an attempt. It is the error in diagnosis which is discouraging, not the treatment of either tuberculous or gonorrheal arthritis. By similar analogy a case of degenerative arthritis will evidence little effect from removal of foci of infection, whereas a case of arthritis directly associated with such a cause should give excellent results upon removal of the offending focus, provided this is done early; later in its more established state, correspondingly good results cannot be expected. Some cases of atrophic arthritis may be helped by removal of foci, but if hypertrophic or destructive changes are also present, results will be modified. Again, atrophic arthritis at one stage may respond brilliantly to a particular form of treatment, whereas at a stage in which ankylosis, synovial thickening, flexion deformity and muscular wasting are present, a similar therapeutic approach will be doomed to failure, if cure instead of assistance is expected.

The tremendous importance of fibrous connective tissue as a factor in the rheumatic state is being appreciated more and more. There is hardly a form of rheumatism in which fibrous tissue is not involved. Traumatic and infective bursitis are examples of fibrositis, as are traumatic injuries to interarticular ligaments. Ankylosis may be due to involvement of synovial membrane and capsule without much intraarticular change. Partial joint fixation without real ankylosis may be due to tendon shortening. These are examples of the way in which fibrosis tissue can be a factor in the rheumatic state, and there are others of equal interest and importance. Appreciation of them helps immeasurably in complete evaluation of any case, and gives balanced hope for satisfactory therapeutic result instead of irrational disappointment.

The orthopedic side of rheumatism has many hopeful aspects. Prevention or correction of deformities may change a case from a miserable outlook to one of comparative hope. Correct orthopedic approach to traumatic phases of rheumatism will minimize subsequent incapacity. Carefully chosen cases may derive not only great comfort but also unexpected freedom of motion following arthroplasty or synovectomy. Arthrodesis may be a gratifying answer especially for tuberculous joints which are painful and useless in their existing state. Properly selected times for application of braces, appreciation of correct and incorrect times for manipulative procedures, critical study of muscle reeducation, all these give hope for the rheumatic patient from the orthopedic standpoint.

Physical therapy has been misused almost as much as it has been correctly used. Recognition of the condition being treated and selection of the proper time for any physical therapy is far more important than the type of therapy which is to be employed. Artificial pyrexia may be the worst form of treatment for a debilitated patient and yet it seems to be nearly specific for acute gonorrheal tenosynovitis. Hydrotherapy may alleviate symptoms or it can cause a disagreeable exacerbation. Massage may be harmful at one stage, helpful at another. Physical therapy, just as any other form of treatment, must be used only after careful appraisal of the underlying features of the case to be treated, and even then the "dose" must be calculated. In such a way it becomes a helpful ally capable of doing great good, whereas, if unwisely used, it may lead to disappointment.

No therapeutic agent can be considered as a cure-all in the rheumatic state; each principle of therapy may become a factor to be employed at one time or another, as indicated, in the treatment of a case of rheumatism as it is individually presented. Drug therapy for the relief of pain, specific or nonspecific vaccine therapy, various injectable chemical preparations, diet therapy, physical therapy and orthopedic management are not specific cure-alls but each should be a part of one's armamentarium to be exhibited as needed.

These, then, are some of the hopeful aspects of rheumatism. First and foremost stands the changing attitude of the medical profession in which we find physicians in all parts of the world accepting the challenge of the rheumatic state. As a direct result of this changing attitude comes a clarification of rheumatism by classification, the recognition of the many structures which may be involved in a given case and an understanding of the part played by any one of these structures in the disease-complex. When proper evaluation can be made of the many factors at play, every therapeutic approach, whether it be medical, orthopedic or physical, will take its proper place in alleviating, if not curing, the incapacity and suffering of the rheumatic patient.

POPLITEAL ANEURYSM. Arthur H. Wells, Duluth, Minn.; Clay E. Coburn and M. A. Walker, Kansas City, Kan. (Journal A.M.A., April 11, 1936), believe that it is not generally known that, with the exception of aneurysms of the aorta, popliteal aneurysms are found more frequently than those of any other artery. According to Matas, they are by far the most frequent of the surgical and operable types of the disease. Because of this frequency, their characteristic rapid progression and the efficacy of proper surgical intervention, the authors give a brief review of the subject and present a case illustrating tragic characteristics of the disease. The relative frequency of popliteal aneurysms, their often rapid progression, the disastrous gangrene in unaided cases and the efficacy of proper management makes this an important subject for every physician who is likely to encounter the condition.

CARPAL FRACTURE DISLOCATION

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Fracture dislocations of the carpi are rightly classed as a common type of injury. However, there is some difference of opinion as to the frequency of this injury, especially the lateral or radial dislocation. Packard and Kirschbaum[1] report the case of a radiocarpal dislocation combined with a fracture of the scaphoid bone. They could find no cases reported, but on personal communications some were discovered. They considered the injury rare. We have had one case only.

In the text of Böhler[2] this is classed as a common type of fracture dislocation. Böhler reports some four hundred and thirty-seven cases of carpal injuries in a six year period. In the same period there were about six hundred and sixty-nine fractures of the lower end of the radius. There were seven cases of fracture dislocation, in which the scaphoid bone was fractured and the lunate (semilunar) bone was separated from the other carpal bones. According to Böhler's text this is classified as a transnaviculoperilunar dislocation and is usually accompanied by a fracture of the tip of the styloid processes of the radius and ulna. Figures 1 and 2 show diagramatically his classification of the fracture dislocations.

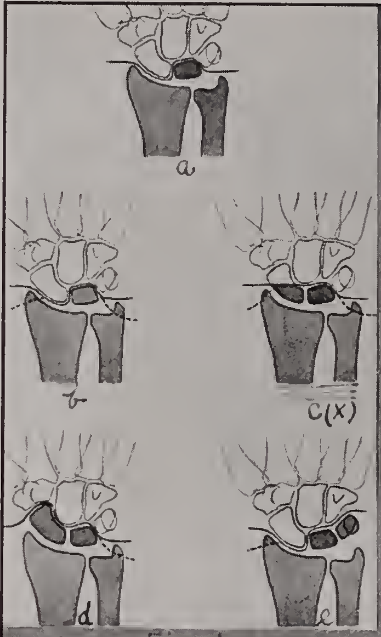

Fig. 1

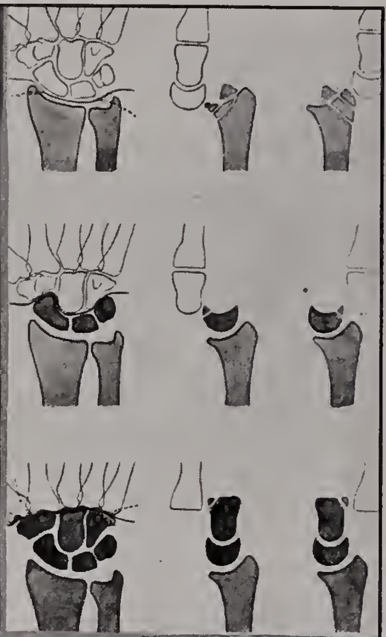

Fig. 2

Fig. 1. Dislocations in the lines of the joints round the lunate bone (after Schnek). The unbroken lines represent pure dislocations, the dotted lines dislocations complicated by fracture. The unshaded distal parts are dislocated from the proximal shaded parts. a. Pure perilunar dislocation (common). b. Trans-stylo-perilunar dislocation (common). c. Trans-naviculo-perilunar dislocation (common). d. Peri-naviculo-lunate dislocation (rare). e. Peri-triquetro-lunate dislocation (rare). (Böhler's classification of carpal dislocations.)

Fig. 2. Dislocations of the hand at the three main joint lines (after Schnek). The parts left white in the diagrams have been dislocated from the darker parts. The plain lines indicate pure dislocations; the dotted lines fracture-dislocations. Above—dislocation between radius and carpus. In the middle—mid-carpal dislocation. Below—carpo-metacarpal dislocation. In the lateral pictures are shown the dislocation to the dorsal and palmar sides, with the corresponding fractures. (Böhler's classification of carpal dislocation.)

Certain principles in treating this type of injury pertain in the treatment of practically all severe fracture dislocations of the wrist and also fractures of the carpal bones themselves. Böhler's technic of traction on the thumb and first three fingers by an assistant using countertraction by a padded band attached to the wall holding the arm, with the elbow at 90 degrees and manipulation or pressure by the surgeon, serves to obtain perfect reduction in the large percentage of such injuries. Fixation in a nonpadded plaster in fracture dislocations of the severe type, with the wrist in slight dorsiflexion and ulnar deviation, should then be maintained until healing takes place. Two to six months may

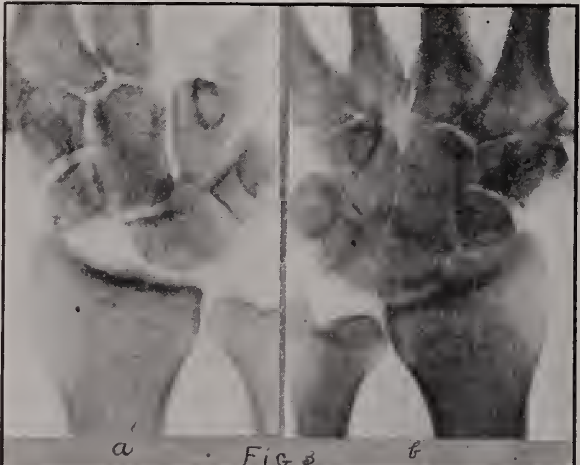

Fig 3

Fig. 3. (a) Fracture of scaphoid with immediate removal of one fragment. (b) Same wrist later, showing radiocarpal arthritis.

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[1] Packard, R. K. and Kirshbaum, J. D.: Lateral Dislocation of Wrist Joint; Report of Case of Radiocarpal Dislocation of Radial Side. Arch. Surg. 31:266-276, Aug., 1935.

[2] Böhler, L.: The Treatment of Fractures, Third Edition. pp. 237-240. Wm. Wood, Baltimore.

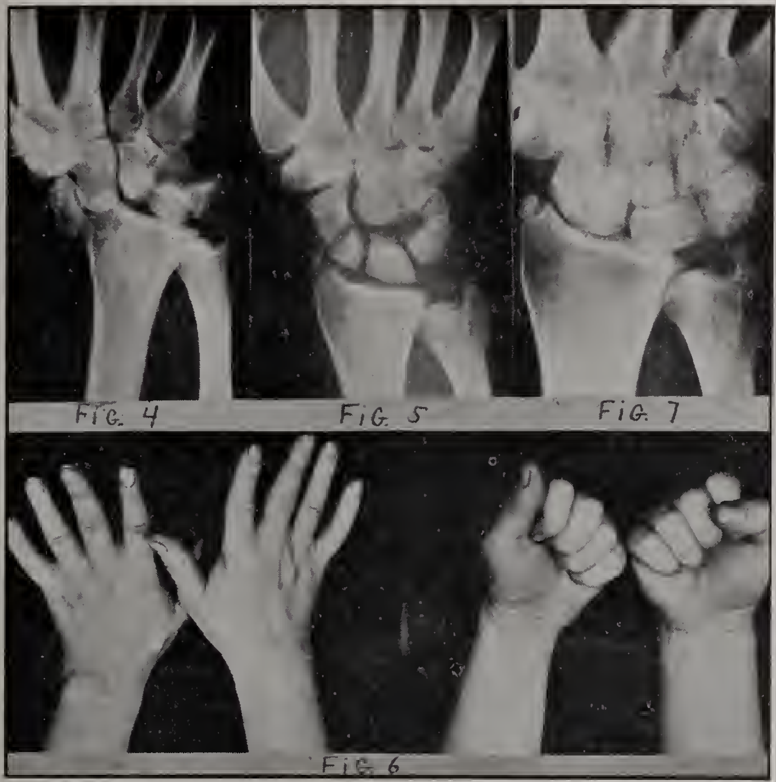

Fig. 4. Fracture through scaphoid, both styloid processes and chip fractures of triquetrum. Radial dislocation of hand.
Fig. 5. Same under finger traction after reduction.
Fig. 6. Photograph about four months after injury, showing some limited motion in right wrist joint.
Fig. 7. Radiograph about four months after injury, showing union in scaphoid and styloid processes.

be required for healing to take place in the fractured navicular (scaphoid) bone.

Most important of all, however, is to maintain full function of the whole extremity. Motion of the fingers, elbow and shoulder should be completely carried out during this period of immobilization. Only in this manner can a useful hand result when it is necessary to secure such prolonged fixation of the wrist. The scaphoid bone should not be removed if fractured and in good position. This applies to recent and old cases alike.

Figure 3 shows a radiograph of a wrist, a, in which half of the scaphoid bone was removed; b, shows a progressive degenerative arthritis in the same wrist later. The wrist was almost stiff, it was weak, and painful. A nonunion of the radius is much less disabling and may be treated by bone peg grafting or drilling followed by sufficient immobilization until bony union takes place.

CASE REPORTS

Mr. J. R., age 33, was injured on September 22, 1935, and treated at King County Hospital for a fracture of the right carpus with radial dislocation. There was a fracture of the navicular (scaphoid) bone, a fracture of the tip of the styloid processes of the radius and ulna, with a dislocation in which the lunate (semilunar) bone and one-half of the carpal scaphoid remained attached to the radius (fig. 1, c*), while the whole hand and remainder of the carpal bones, including half of the fractured scaphoid, were dislocated to the radial side. There was also evidence of a cortical fracture of the other adjacent carpal bones (fig. 4).

Böhler's technic of reduction was carried out with fixed countertraction by a band attached to the wall. After slow steady traction for about ten minutes on the fingers, manual pressure and moulding, a good reduction resulted (fig. 5).

Immobilization was carried out in a nonpadded plaster cast for two months, at which time roentgen recheck showed evidence of the union of the fractured scaphoid.

Because the man had diligently used the fingers and the whole extremity as directed, he had full range of motion of the fingers and phalangeal joints. The motion of the wrist joint returned partially. When last seen on January 22, 1936, he had been drviing a motorcycle as a delivery man since the plaster was removed. He has some pain and tenderness in the wrist, but this is not severe. He does not believe he could do the hardest of manual labor at present. The wrist is nearly normal in appearance (fig. 6).

There was some tenderness over the ulnar dorsal side of the carpus. Flexion below the straight position of fifteen to twenty degrees was possible; extension came to about thirty to thirty-five degrees above the straight position. This is about one-third of the normal motion. There was fifty per cent of radial and ulnar motion equally divided. The radiograph, four months after the injury, shows union of the scaphoid (fig. 7).

Bone density is good and joint spaces are wide. This man should in time make further recovery.

CONCLUSIONS

1. Another patient with a fracture of the carpal scaphoid and radial dislocation of the hand is reported.

2. Recent fractures of the carpal scaphoid (navicular) probably always unite if a sufficient period of effective immobilization is maintained (six to twelve weeks).

3. Removal of the fractured scaphoid or its fragments should not be performed as a rule.

SILICOSIS PNEUMOCONIOSIS

ITS CLINICAL AND INDUSTRIAL ASPECTS*

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Silicosis has become one of the major problems of industry throughout the world. Silica being the most common element of the earth next to oxygen, man has been exposed to its inhalation since the beginning of time. May I be excused if I purloin a common expression of the day when I say the "Greeks had a word for it." Hippocrates himself recognized it, but blamed mining and metal dust for the industrial lung trouble of his countrymen; it is their language which has given us the word "pneumoconiosis." Two thousand years elapsed after its mention by Hippocrates until our next written record of Agricola in his treatise "De Re Metallica," published in 1556, followed by a description by Paracelsus in 1567. A century later, in 1671, De Ramezzini wrote a treatise on the diseases of trade. It was the first publication of its kind in the history of occupational diseases. It made special reference to one of the most ancient of working men's maladies, known as the disease of stone cutters who "oftentimes suck in by inspiration the sharp roughened corners, small splinters and particles that fly off; so that they are usually troubled with a cough and some of them turn asthmatic and consumptive and in dissecting the corpses of such artificers lungs have been struck with little stones. Diemerbroek gives a description of several stone cutters that died asthmatic and were opened by him; in whose lungs he found such pieces of sand that in running the knife through the pulmonary vesicles he thought he was cutting some sandy body."

De Ramezzini wrote another book upon the diseases of tradesmen, in 1705. We have eight more historical articles written between that time and 1800. In the next hundred years about three hundred and eighty-six articles were published on the subject of pneumoconiosis. The bibliography on this subject now numbers to about three thousand accepted references.

Silica being the most common element of the earth's crust next to oxygen, it is a common constituent of our food, in the air we breathe, and in the water we drink. It is the oldest source of industrial hazard. Silicosis is a definite disease, intended to become the foremost and most serious of occupational diseases of the future because of the number of workers in the dusty trades is greater than that of any other group exposed to a single industrial hazard. About 16 per cent of all workers are exposed to the hazard of dust. Over two hundred occupations give enough dust to produce some effect on the respiratory tract. As much as ten ounces of dust have been recovered from the lungs of coal miners and often one-third of the entire weight of the lungs has been found to be silica deposits.

The subject is assuming staggering significance. Over a half million people are exposed to silicosis in the United States. While tuberculosis in this country has decreased over fifty per cent, in the dusty trades it has risen over thirteen times. Let me quote a few round figures of the distribution of these people exposed to silicosis and other forms of pneumoconiosis: 218,000 in smelting and refining foundries; 62,000 in metal mining; 30,000 in coal mining; 35,000 in glass works; 27,000 as grinders: 35,000 as buffers; 22,000 in quarrying; 18,000 in pottery; and 20,000 in manufacturing granular, slate and marble products. There are unknown numbers as sandblasters, vitrious enamelers, and those working with abrasive wheels, sandpaper, hones, minerals, tunnels, roads, streets, and on other construction. Kilgore reported its presence in abrasive soap workers several years ago.

The primary cause of silicosis is inhaled free silica (S_1O_2) invisible to the naked eye. Its worldwide distribution has resulted from the introduction of pneumatic tools in mines, quarries, tunnels, building and stone work, sandblasting, pottery, foundries, and factories where grinding and enameling go on. In the refinements of industry the particles have become finer and the silica more pure. Men are driven harder, they breathe deeper and faster, and the morbidity from silicosis increases. We know that the dust particles, in order to be absorbed into the lung tissues, must be much too small to produce a direct mechanical injury. The effect is chemical, rather than traumatic.

Let us review the symptomatology, and then the important industrial aspects.

CLINICAL MANIFESTATION OF SILICOSIS

Silicosis may be divided into two classes: simple silicosis, and silicosis plus tuberculosis (or vice versa).

Simple silicosis is usually further divided for convenience of description as well as compensation into three stages: first, second and third. In Canada and South Africa they are defined by law as anteprimary, primary and secondary. Examination of nearly fifteen thousand men in South Africa and in the Pitcher district of Oklahoma revealed no correlation between silicosis and past diseases. The majority of investigators feel that it is not merely a distinct clinical entity, but is a fibrosis started by dust which from its beginning is linked up with an element of latent tuberculosis infection.

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* Read before the Section on Industrial Medicine of San Francisco County Medical Society, San Francisco, Calif., September 17, 1935.

Substances which are common constituents of occupational dust may be divided into two groups; active and inert, depending on their behavior when injected subcutaneously. Active dusts are those causing acute inflammatory reactions, such as kaolin and flint. Inert reactions are those causing glandular pathology, such as iron coated silica and wellingtonite. Dust is a common constituent of our food; it is in the air we breathe and in the water we drink. Individual susceptibility seems to play no appreciable part in causing silicosis, but preexisting pulmonary disease tends to hasten and complicate its onset. No nationality is exempt and all races are susceptible.

Age in itself seems not to be a great factor in the prevalence of the disease, although the greatest percentage of cases amongst the workers seems to be between the ages of thirty-five and forty. Naturally, these men have worked longer than the younger ones. Any disturbance in the respiratory tract, such as in the sinuses and nose, seem to increase the frequency and severity of silicosis. Syphilis is definitely contributory, resulting in a more rapid development and a distinctly more rapid course. While all races are susceptible, the disease seems to follow the same morbidity curve as does tuberculosis and lues.

Silicosis usually develops slowly, frequently over ten-year periods, but it may show in less than two. Its severity depends upon three factors: the amount of dust in the air (particles per cubic foot of air), the amount of silica in the dust, and the frequency and duration of exposure.

In discussing the symptomatology of the disease, the cardinal symptom is shortness of breath. The cardinal sign is decreased chest expansion. As previously mentioned, this disease is usually divided into three stages, exclusive of complications with tuberculosis. The first stage of silicosis usually finds the worker in robust health, with a normal weight, a normal blood pressure, slight dyspnea or practically none; his working capacity is not noticeably impaired by himself or anyone else. He may have some unproductive cough; it is usually a dry cough, often worse in the morning, and often bad enough to induce vomiting.

Out of 7,722 miners examined in the Pitcher district of Oklahoma, eighteen per cent were in the first stage of silicosis. Many of these men showed a decrease in chest expansion; the elasticity of the chest wall was impaired; they were subject to recurrent colds, and there were slight roentgen signs in most of them.

The highest percentage of these 7,722 men were in the second stage of the disease. The symptoms of this stage were, first of all, an increase in the symptoms of the first stage plus the appearance of chest pain, with more expectoration and fairly frequent hemoptysis. They noticed their working power impaired. Vomiting was frequent, as well as recurrent colds. The roentgenogram shows generalized medium-sized mottling throughout both lung fields, usually discreet and well bordered on a background of fibrous arborization. These men in the second stage seemed to show a weight above normal. The upper half of the chest usually shows a flattening, but not a marked retraction as in tuberculosis in a chronic stage. There is definite decrease in respiratory excursion. Inspiration becomes more harsh with expiration fainter and prolonged.

In the third stage of this disease, the dyspnea becomes quite marked and distressing even on little exertion. Cough is harsher and more constant. The expectoration in this stage may be copious, the overweight becomes soon underweight, the pulse rate rises, chest expansion is markedly decreased, and the individual capacity for work becomes seriously or permanently impaired. There may be dilatation of the heart. Cyanosis may be present. Now we have dense roentgen findings. There does not appear to be any supraclavicular or infraclavicular depression. The percussion note becomes flat, and the chest usually has the appearance of emphysema to a greater or lesser degree at some time during the course of the disease. Of these seventy-seven hundred miners examined, only thirty-two were found to be in the third stage.

This important work was done by Sayers of the United States Public Health Service, and confirmed the excellent work of Irvine and his associates in the study of this silicosis problem in South Africa. Of the 7,722 cases in this series, 20.3 per cent were under twenty years of age who developed silicosis; 25 per cent of those having silicosis were between the ages of forty and forty-nine. Those men found to have first stage silicosis had worked an average of thirteen years with exposure to silica. However, those starting to work after forty years of age only worked 7.8 years on an average before developing the disease.

Sayers regards silicosis as a dust infection linked from its clinical beginning with an element of latent tuberculosis. It has been noted by many capable workers that coal miners, who presumably had anthracosis and later worked in contact with silica, succumbed to silicosis much more rapidly than their fellow workers. Unlike tuberculosis, however, and other diseases, there does not seem to exist any relationship between living conditions and the development of silicosis. It is purely a problem of exposure to silica in dust. It is an insidious disease of extreme importance. It is often difficult to recognize because of its difficulty in diagnosis, its peculiar relationship to tuberculosis, its universal susceptibility and the extreme difficulty associated with efforts for prevention and control.

Of all the dusts, silica is the element producing the most damage, inorganic dust causing more pulmonary disease than organic dust. We must not forget the fact that tuberculosis has decreased markedly in general throughout the world, particularly in this country, but that it has risen alarmingly in the dusty trades; 75 per cent of silicosis patients die of tuberculosis. The tuberculous factor may appear in any stage of the disease. A partially healed or latent tuberculosis may be reactivated by exposure to silica. This tuberculosis modifies the roentgen pictures into very confusing problems at times.

Our diagnosis naturally rests upon three bases: the history of exposure, the roentgen picture of the chest, and, least of all, that of physical examination. The silicon fibres are also demonstrable in the sputum of most cases. Silicosis is bound to develop when a sufficient quantity of fine dust is inhaled over a sufficient period of time. The free silica, silicum dioxide, causes this severe fibrosis; asbestos, however, causes a similar picture. Particles one to five microns in size are the most dangerous. Many workers believe that the mottling seen in the roentgenogram is the first sign of the disease, but often there is confusion with miliary tuberculosis.

Cunningham studied a series of 728 cases, all having simple silicosis in the first stage. At the end of six years, 25 per cent were still in the first stage, 25 per cent were in the third stage, and 18 per cent were dead, mostly from tuberculosis. When silicosis is well established before the advent of tuberculosis the progress is extremely rapid, the patient may be bedridden in a few weeks and dead in a few months. The greater the degree of silicosis the more rapid the tuberculous pathology. One outstanding feature of silicosis throughout the world is the almost unanimous agreement of symptomatology, pathology and prognosis among the major workers.

The four outstanding workers in this country are probably Lanza of the Metropolitan Life Insurance Company, Gardiner of Saranac Lake, Pancoast of the University of Pennsylvania and R. R. Sayers of the United States Department of Public Health. The most modern and comprehensive books on the subject are those by Geo. G. Davis, Ella M. Salmonsen and Joseph L. Earlywine of Chicago, one published last year and one just off the press. The former is entitled, "The Pneumoconiosis Silicosis; Bibliography and Laws"; the latter, "Literature and Laws." These have an excellent bibliography of 2,768 articles, beginning with Agricola's "De Re Metallica," published in 1556. The publisher is Industrial Medicine, Inc., Chicago.

Summarizing, then, the diagnosis of silicosis, we can say that it can be arrived at with accuracy only by a full consideration of the history, physical findings, etiology, pathology and chemical examination. We must bear in mind that the silica particle as such is not solely responsible for the causative lesion. In a vast number of cases, sericite, a hydrate of potassium aluminum silicate, is the causative factor of the pulmonary lesion. A good many workers consider asbestos particle inhalation as a form of silicosis. Strictly speaking, however, this naturally should be called asbestosis, and the injury in that disease as in the ordinary silicosis is due again to silicic acid solution. Aside from the asbestos and the sericite, which I mentioned, there is also sillimanite and tremolite, the former being an aluminum silicate compound and the latter calcium magnesium silicate compound. We also have fibrous forms of free silicate as in chert, or fibrous rock as in pumice.

In this discussion of silicosis symptomatology and sequelae, tuberculosis has received the most prominent attention. I must mention the fact, however, that carcinoma of the lungs and of the bronchi has been fairly frequently reported in scattered areas throughout these industrial fields. Undoubtedly more carcinoma would be found if all these cases came to autopsy. The possibility of this malignancy occurring in the future has been used in the racketeering and legal maneuvers I shall mention later on.

Finally, in making a diagnosis of silicosis, an accurate industrial history, past and present, must be painstakingly investigated and established to have some definite time relationship with the train of events in the clinical course.

The situation in California at the present time is a deplorable one in the sense that a recent decision of the Supreme Court so lengthened the time limit for filing claims that lawyers have combed the state to find suitable cases wherein silicosis disability can be claimed. In this state so far, nearly one hundred cases have been filed with the Industrial Accident Commission. The decision of the Supreme Court was that of the Marsh case et al which changes the situation to this effect: there is almost no time limit now within which an applicant may file with the Commission after the work ended which contributed to his disability. In other words, the Court considers that a man is not suffering from an occupational disease until he has definite belief or information that his symptoms are related to the work he was doing. Therefore, a period of years may elapse after a man has worked even a short time subjected to dust inhalation before he files claim. It may be the tenth year after his work that he first discovers that his present disability is related to the work he was doing. From that day on when he is so cognizant of the situation he has six months in which to file.

Organized labor is signing up all of the workers they can find who are or have suffered from respiratory diseases, and do or once did work in the mines or other dusty trades. They are even filing them and determining the facts later. Well over one hundred million dollars worth of damage suits have been filed in this country by silicosis claimants. Recovery has been frequent (in courts especially) and awards have been high.

In southern California the situation is particularly acute because of the number of pottery, clay modelling and asbestos workers. The tuberculous ward in the San Francisco Hospital has discharged men after many months of care, and later, if they are working at a dusty trade, many are claiming a tuberculosis on industrial grounds. One of the most difficult situations to work out is the fact that a great many workers are suffering from some heart condition causing dyspnea and other physical signs but their lung radiology may show some pathology. The disability here is definitely cardiac, entirely divorced from the work they were doing, yet because of the appearance of some pathology in the lungs a fight is being made for these men on the grounds of industrial disability. The cases involving the California State Compensation Insurance Fund are already so numerous that legal talent on the outside has been engaged to defend the State.

SOLUTION OF THE PROBLEM

What are we going to do about it? Once silicosis is established in the individual there is little in the way of therapeutics. Once present, the disease advances, often becoming fatal, so that our chief method of attack in its control and eventual lessening is that of prevention. I feel that the first important factor is the forming of compensation laws that will allow and recognize the physical and radiologic examination of men applying for and starting work of this hazard before employment. This allows the rejection of those unfit and gives a warning of those already showing evidence of the disease; then the employer does not assume all the risk in accepting a worker, if her chooses to work, knowing his physical condition.

Next in importance must come the periodic examination of all these workers exposed to free silica. Every state in the Union as quickly as possible should formulate compensation laws covering occupational diseases so that these cases may be kept out of the hands of racketeers and the law courts. Many preventive measures can be carried out at the site where the work is performed, such as the analysis of dust particles in a cubic foot of air, with resulting measures to lessen these, with greater ventilation. As much of this work should be done as is possible under wet conditions, such as wet drilling, wet marble grinding and so forth. Dust should be controlled at its point of generation so as to prevent it from reaching the zone of the workers. Thorough wetting is the simplest solution of this problem.

The air velocity in shafts and tunnels must be increased. In each of the trades in which workers are exposed, a determination should be made of what is a harmful dust measured per million particles of dust per cubic foot of air. There are several methods and apparatus designed and accepted for such analysis. Repeated inspection by men trained in such work should be made of all places in which workers are exposed to dust. All workers having tuberculosis in an active or even latent state should be prohibited from working underground or in dusty occupations above ground. Records must be standardized; methods of examination of the individual as well as methods of inspection of the area of work must be standardized. Only in this way will control measures really amount to something worthwhile. Commissions or boards of medical men, rather than individuals, unless they be specially trained and limited in their activity to this work, should be maintained. It would seem to me a wise thing to have a medical board of appeal to which dissatisfied workers may appear, rather than go directly to the law from the first medical examination. Naturally, each dusty operation or occupation must have its own measures as there can be none applicable to all.

The dust hazard also must be ascertained for each of the dusty trades. For instance, the United States Public Health Service has fixed threshold limits in granite dust. Concentration of granite dust (35 per cent free silica) below ten million particles per cubic foot, causes no disability or serious lung impairment over a long period of time. This value was taken as a safe limit of dust exposure for workers in this type of granite.

The next type of preventive measure is the wearing of respirators, but their efficiency will depend upon the type of filter medium used and the way they fit the wearer. Most all workers complain of these protective devices because of their inconvenience, and most of them will only use them intermittently. Compensation boards and accident commissions must base their awards purely on the occupational disability according to the state of the disease.

Several states, notably West Virginia, have provided for silicosis compensation, but classified the disease into three stages and made lump sum awards according to the stage involved. The employer is urged to undertake safety measures in addition to those mentioned, such as their own filter plants for water, bath houses, first aid stations, and easily obtained and low cost medical care with hospitalization when necessary. The whole solution rests more with the sanitary engineers than it does in the field of medicine. All these methods of prevention that I have mentioned have been undertaken in some form by many workers in this field. Naturally they are not original; they are mentioned here to impress you with the tremendous engineering problem that lies ahead.

One recommendation of great merit, suggested to me by Dr. Nelson Howard, is that of the establishment of a medical board of review. This board, consisting of physicians, should have the function of considering each case and deciding whether or not it is an industrial liability case. From their decision, the industrial degree of liability should be decided by laymen constituting the commission. This vast industry needs the highest degree of protection. It needs not only a "new deal" but a new deck.

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INCIDENCE OF FIRST INFECTION TYPE OF TUBERCULOSIS IN CHILDREN*

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INCREASED EXPOSURE

In childhood, there is an increase in activities and associates, some of whom may have communicable tuberculosis and, therefore, the chances of infection with tubercle bacilli are increased. This, of course, depends upon how well open cases of tuberculosis have been treated or isolated in the community in which the child is being reared. If this prevention work has been well done, as it has in many parts of our country, the child's chances of being exposed may be little or no greater than they were in his own home. In addition, the chances of being contaminated with the bovine type of tubercle bacillus have been reduced through pasteurization ordinances, as well as area testing and the slaughter of positive reacting animals. Therefore, large numbers, in fact the majority of children, pass through the period of childhood with no contamination with tubercle bacilli; hence, they have no tuberculosis problem.

EARLY REPORTS OF INCIDENCE OF INFECTION

One of the great handicaps in combating tuberculosis has been the belief that most children have been contaminated with tubercle bacilli by the time later childhood is reached. This belief goes back to the work of Pirquet, Hamburger and Monti, and other early users of the tuberculin test, who found 80 per cent or more of the early 'teen age children had been infected. Although Pirquet's percentage of positive reactors, up to eleven years of age, was 80 per cent, he said, "This high percentage cannot be considered as being the figure for all children, as very many cases are admitted into the hospitals because of tuberculosis." Again he says, "The percentage of infected (reacting) children is a particularly high one in my table. In other cities it will hardly be as high because tuberculosis is notoriously prevalent in Vienna. Furthermore, all my patients belonged to the poorer classes. My statistics, therefore, lose in some degree their general value. Our children are infected at a much earlier age on account of the prevalence of tuberculosis among their parents. It is necessary to make similar studies in every city in order to ascertain the frequency of tuberculosis in general."

In 1915 Veeder and Johnston of St. Louis administered the test to 1321 children and found that only 48 per cent of those twelve and thirteen years old reacted positively. About nine years later, Slater made a study of 1654 rural school children and found an average of only 10 per cent reacting positively to the tuberculin test. Chadwick and Zacks of Massachusetts in 1929 reported the results of their tuberculin testing on 42,071 school children in Massachusetts with an average of only 28 per cent reacting positively. The same year McCain of North Carolina in a total of 25,048 school children found only 22.7 per cent of white children and 27.34 per cent of colored children reacted positively to the tuberculin test. Rathbun of Cassadaga County, New York, had already found a low incidence of positive reactors.

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RECENT REPORTS

Since the work of these investigators, a considerable volume of tuberculin testing has been done. In the summer of 1935, a questionnaire was sent to the various State Tuberculosis Association secretaries regarding the tests which had been administered in the past and those which are contemplated. There is now no state in the Union where at least some tuberculin testing of school children is not being done. However, the reports are like early election returns. Nothing like all of the children have been tested in any state but a great deal of sampling has been done, which shows the tendency as far as tuberculin reactions are concerned. During the past ten years in the state of Massachusetts, more than 400,000 children have been tested through the Chadwick clinics. The incidence of positive reactors for the entire group is approximately 25 per cent. In North Carolina, 200,000 children have been tested in recent years with the incidence of positive reactors ranging between 4 and 10 per cent, although in a few places it has been as high as 20 per cent. In Minnesota, approximately 100,000 tests have revealed an incidence of approximately 10 per cent. From Missouri comes a report of 15,000 tests administered last year with 10 to 20 per cent positive; from the state of Wisconsin more than 25,000 tests with 7.5 per cent positive; from Oregon 10,000 tests with an incidence of positive reactors slightly below 10 per cent; in West Virginia with nearly 18,000 tests, 11 to 16 per cent reacted positively; in Delaware among more than 2,000 children tested, approximately 19 per cent were positive; in Kentucky, of the last 12,000 school children examined, approximately 19 per cent were positive.

THE FUTURE OF TUBERCULIN TESTING

One might go on with the reports from the various states, but in each one a low incidence of positive reactors is reported, with the few exceptions where there are unusual concentrations of open cases of tuberculosis. Most of these reports were obtained from school surveys, etc., and, therefore, do not begin to represent all of the tuberculin testing now being done. Large numbers of physicians in their private offices throughout the country are administering the tuberculin test. We can no longer speak of only hundreds or thousands of tuberculin tests being administered. The number is fast approaching the millions. A most encouraging fact is that nearly all state tuberculosis secretaries report that much larger tuberculin testing campaigns are being contemplated.

VARIATIONS IN THE INCIDENCE OF POSITIVE REACTORS

The number of children with positive tuberculin reactions in any community will depend a great deal upon the incidence of open cases of tuberculosis in that community, as well as the education of the public concerning the communicability of tuberculosis. For example, Hetherington et al in 1929 found 72.6 per cent of the children in certain schools in Philadelphia reacted positively to the tuberculin test. In another group in the same city, these workers found 37.7 per cent of children with positive tuberculin reactions at the age of five years and 90.2 per cent at the age of eighteen years. Chadwick and Zacks in a Massachusetts city found that 11 per cent of the children in one section of the city and 60 per cent in another section of the same city reacted positively to the tuberculin test. One may find all the children of one family reacting positively, while all of the children in another family in the same block react negatively to the test. In the first family, no advantage has been taken of all that we know about the prevention of contamination, while in the second family enough advantage has been taken of our knowledge to prevent any tuberculosis problem.

The incidence of positive reactors is much higher among Indian and Negro children than among white children because of the greater prevalence of open cases of tuberculosis among the adults of these races. In Montana, where approximately 5,000 children were examined in 1934, 52.2 per cent of the Indians and only 19 per cent of the white children reacted positively. In 1931, a survey made on the Fort Peck Reservation showed that approximately three times as many Indian children as white children reacted positively to the tuberculin test. A much higher incidence has also been found among the Chippewa Indians in Minnesota than among the white children of the same community. In the Southern States, the incidence of positive reactors among Negro children has been found to be definitely higher than among white children. Palmer of Jacksonville, Florida, found approximately 79 per cent of Negro high school children reacting positively. In the same state, the incidence of positive reactors among white children is approximately 16 to 25 per cent.

Another very interesting finding is that of the high incidence of positive reactors among children of certain health resort states. In Colorado, of more than 1700 children examined, 33 per cent reacted positively; in Arizona approximately 50 per cent of the children of a small health resort town reacted positively, whereas only 15 per cent of the children residing in mining towns of the same state were found to be positive to the tuberculin test.

INCIDENCE OF CONTAMINATED CHILDREN DECREASING

While we know the mortality from tuberculosis in the human family has been decreasing for more than fifty years, it is encouraging to be able to observe marked reductions in the incidence of positive reactors in recent times. Korns has reported almost unbelievable decreases in the incidence of positive tuberculin reactors among the children of Cattaraugus County, New York. This in no small part is the result of his fine program of detecting the open cases of tuberculosis and isolating or treating them so that they no longer disseminate tubercle bacilli. In Framingham, Massachusetts, a marked reduction in incidence of positive reactors has been observed since the closing of the special tuberculosis demonstration of that city. In the outpatient department of the Lymanhurst Health Center, there was a decrease of more than 45 per cent in the incidence of positive tuberculin reactors between 1921 and 1935. In somewhat isolated places, as well as those where intensive tuberculosis control programs have been in effect, as reported by McCain, Peck, Broker, and Slater and Vadheim, the incidence of positive reactors among school children is already less than 5 per cent. Thus, in the brief period of time since Pirquet and Mantoux reported the results of their work, the incidence of tuberculous infection among children has very definitely decreased.

SIGNIFICANCE OF TUBERCULIN TEST IN CHILDHOOD

Just as in infancy, the positive tuberculin reaction in childhood indicates an exposure to tuberculosis. Therefore, the test may be used to great advantage in finding among the positive reactor's associates unsuspected open clinical cases of the disease. For example, in the schools of Cleveland in a single year when tests were administered to the girls and boys of the first grade and a search was made among the close associates of the positive reactors, forty-two cases of clinical tuberculosis previously unsuspected were diagnosed. In the second place, a positive tuberculin test indicates that the child has the first infection type of tuberculosis somewhere in the body. Inasmuch as such children are far more likely to develop clinical disease during adolescence or subsequently than other children, the test serves an excellent purpose in screening out those who need very careful periodic examinations and close observation when this dangerous period begins.

FACTORS WHICH AFFECT THE TEST

The tuberculin test is probably the most accurate biologic test we have for any disease, although sensitiveness of the tissues to tuberculoprotein may be somewhat decreased during and for a short time after the febrile stage of acute infections and desensitization may actually occur in cases of grave tuberculosis. Under such conditions, larger doses of tuberculin are necessary to elicit a positive reaction, as pointed out by Happ and Casparis. At one time, the opinion was held that once an individual became a positive reactor he would continue to be positive for the remainder of his life. Recent observations, however, show that sensitiveness to tuberculin may wane if exposure is not continued. In such cases, larger doses of tuberculin are necessary to result in a positive reaction. It is also possible for the tissues to entirely lose their sensitiveness, particularly if all the tubercle bacilli in the body are destroyed. Baldwin, Petroff and Gardner say: "Allergy persists as long as tubercle exists in the body. Complete anatomic healing or such compact fibrosis of the tubercle that no diffusion from its interior into the circulation is possible results in diminution or loss of allergy."

Probably the most common source of error in tuberculin testing is the use of a preparation that has lost its *potency*. One should always make sure that the material used is not only potent but also free from contamination.

CHILDHOOD IDEAL PERIOD FOR TESTING

During this period, while children are under close supervision of their parents, every physician should instruct the members of the families of his clientele concerning the significance of the tuberculin test. In 1934, for the first time in the history of the

Summer Roundup, the tuberculin test was included. This should give the physician in private practice an unusual opportunity not only to administer the test to the preschool age child, but to recommend it for all other children. When children are gathered together in schools, one may take advantage of group psychology. At this age period, their minds are impressionable and retentive. One should not be discouraged, if the percentage of parents who give consent for the administration of the tuberculin test to their children is quite small. As the years pass and the tests are repeated for those who previously reacted negatively, this percentage usually increases quite rapidly, since the children themselves, as well as their parents, see that no harm has come to other children who accepted the test.

ROENTGEN SURVEY NOT A SUBSTITUTE

Some have suggested that tuberculin testing be omitted and roentgen films be made of the chests of all school children in an attempt to find tuberculosis. Such a procedure would be very unsatisfactory in most parts of the country because the tuberculin test is a fine screen and often leads to the source of exposure, whereas the roentgen film of the chest is a very coarse screen and detects only a small percentage of those who have been contaminated with tubercle bacilli. It is far better practice and more economical in most places to screen out all the positive reactors and subject just this group to roentgen film and all other phases of the examination which the physician finds necessary.

There remain a few sections in this country where so little work has been done to control tuberculosis that the tuberculin test cannot be used to much advantage, particularly among the older children, because such a high percentage of them react positively. Such communities need to institute case-finding campaigns among adults. When found, these cases should be treated or isolated. After this work has been done, many children will be spared from contamination with tubercle bacilli and the tuberculin test will be of value because of the smaller number of positive reactors among them.

DOSAGE OF TUBERCULIN

The size of the dose of tuberculin used in testing during the period of childhood has been widely discussed. It need not differ from that described for the period of infancy. Either Purified Protein Derivative or Old Tuberculin may be used. When the latter is employed, a safe and accurate method consists of administering intradermally 0.1 milligram. For all who react negatively, a full milligram may be administered as the second dose without causing any severe reactions. Some workers prefer to use as the initial dose 0.01 milligram and follow this with a second dose of 1 milligram. When only one test can be given, 0.1 milligram is a satisfactory dose.

The problem of diluting tuberculin has been solved in a number of states by tuberculosis associations, health departments, medical societies, etc. providing the tuberculin free of charge to the physicians with directions for its use. In at least one county, the health department, the medical society and the tuberculosis association deliver freshly diluted tuberculin to the offices of physicians every two weeks. This has resulted in the administration of the tuberculin test by large numbers of physicians who otherwise would not use it. Specialists in various phases of medicine, such as nervous and mental diseases, and general practitioners have detected many cases of tuberculosis among the families of their clientele, which would not have been diagnosed at that time had it not been for this service.

THE MASTER KEY TO TUBERCULOSIS

During the period of childhood, one holds the master key to the door of tuberculosis. This is the time when children are receiving their formal education. In connection with this education, they can be taught how to control one of the greatest scourges of the human family. Those who react positively to the tuberculin test can be informed that, if they develop a reinfection type of disease and have it detected in the presymptom stage, it can be treated successfully in a very short time.

PREVENTION IN NEGATIVE REACTORS

Those children who are found to be negative to the tuberculin test, and they constitute a great majority of most groups, can be taught how important it is to avoid contact with open cases of tuberculosis. However, occasionally unsuspected cases exist and, therefore, all children reacting negatively to the test should have it repeated at least annually. For those who become positive during childhood, the same information can then be given them as was given to those who were already positive on first examination. When children have such teaching presented to them in an impressive manner, they not only will be helpful recruits in the present army of tuberculosis workers, but many of them will carry this information through life and will aid greatly in the control of tuberculosis in their generation.

NEUROMA OF THE APPENDIX*

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Chronic appendicitis is one of the most controversial subjects in medicine. When I attended medical school, most surgeons stated that they did not recognize the existence of chronic appendicitis. The appendicitis was either acute or no symptoms were produced. The diagnosis of chronic appendicitis was regarded pretty much the same as we now consider intestinal influenza, that there is no such condition. If an appendix was removed which showed no gross or microscopic evidence of inflammation, the relief obtained, if any, was mental.

The late Deaver of Philadelphia was the most colorful exponent of the existence of chronic appendicitis. One of his last articles was on this subject. On the other hand, Richard Cabot, in an address in this city about a year ago, stated that he disagreed heartily with The Mayo Clinic and others, that chronic appendicitis actually exists. However, it cannot be denied that many patients have been relieved entirely of their symptoms by removing what looked like an innocent appendix. It is my opinion that many surgeons do not understand why these patients get relief.

In this paper an attempt will be made to clarify some of the mysteries surrounding the subject of chronic appendicitis by calling attention to a subject which has been neglected and, in fact, not understood until very recently. It is evident that chronic appendicitis, as such, is a rare entity. In fact Mosiman states that at the Seattle General Hospital chronic appendicitis, as diagnosed under the microscope, constitutes not to exceed 6 per cent of all appendices removed in that hospital. He recognizes a chronic appendicitis as one which has a definitely thickened wall without ulceration of the mucosa and infiltration of round cells in the wall of the appendix.

There are also other conditions which cause definite symptoms referable to the appendix such as fecolith in the appendix, infestation of worms as oxyuris vermicularis, endometriosis, causing marked pain at menstruation, enlargement of lymph glands in the region of the cecum, Lane's kink, Jackson's membrane, tumors of the cecum, and tumors of the appendix.

Most of the tumors of the appendix are neuromata. It is with this pathologic entity that we are concerned in this paper. The most important work regarding neuromata of the intestinal tract, and especially of the appendix, has been done by Masson in Canada, Maresch in Germany, and Hosoi in the United States.

In 1924 Masson[1] reported his studies on 400 appendices which grossly seemed normal. In 1928 he reported the study of 800 more. The material constituted appendices removed routinely when laparotomies were performed for other conditions as well as those removed for relief of pain which was thought to be due to appendicitis. No acute cases of appendicitis were included in this group.

Fifty appendices contained carcinoids which are tumors consisting of epithelial cells containing cromaffin and argentaffin granules. These tumors are found all along the intestinal tract, but are especially numerous in the region of the appendix. The reason for their name was that at first they were thought to be carcinoma because of the fact that they contained at times mytotic figures. However, Masson has shown that carcinoids are really endocrine tumors in their function, and that they are intimately connected with neuromata of obliterated appendices. He has further shown that neuromata regress and are absorbed, if the argentaffin or carcinoid cells disappear. The intranervous argentaffin or carcinoid cells spring by process of budding from the glands of Lieberkühn and migrate out into the periglandular plexus. Masson further showed neuromata of the appendix arise from the nerves of the periglandular plexus, and that they regress individually. He does not correlate the pathologic side with the clinical, but states that of all the appendices examined, those that contained neuromata were the ones that produced symptoms. Whether or not all appendices containing neuromata produced symptoms, he does not state.

Hosoi,[2] in 1933, reviewed both the clinical and pathologic findings of neuroma of the appendix and the correlation of the two. Of 344 consecutive appendices removed at operation and showing no gross or microscopic evidence of acute or subacute inflammation, 195, or 56.7 per cent, contained axial neuromata, proved microscopically. Of these neuromata 69.2 per cent were found in obliterated appendices and 30.8 per cent in nonobliterated; thus, the incidence of neuromata of all obliterated appendices was 82 per cent.

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*Read before a meeting of King County Medical Society, Seattle, Wash., Feb. 17, 1936.

[1] Masson, P.: Carcinoids (Argentaffin-Cell Tumors) and Nerve Hyperplasia of Appendicular Mucosa. Am. J. Path., 4:181-212, May, 1928.

[2] Hosoi, K.: Neurogenic Appendicitis. Study of 195 Cases of Appendicular Neuromas. Am. J. Surg., 22:428-446, Dec., 1933.

SYMPTOMATOLOGY

Age seems to be of no etiologic importance. In Hosoi's series the youngest patient was eight and the oldest seventy-nine years.

Sex. In acute appendicitis the incidence seems to be greater in men. In neuroma of the appendix the reverse seems to be the case. Klotz studied 5,647 appendices and found that the obliterated appendix was almost three times as frequent in women as men. In Hosoi's series this seemed to be true also; however, one should recognize that some of these appendices were removed in routine laparotomies for pelvic conditions. Thus, there is more material from women.

Pain varies greatly from cramp-like to mere discomfort. In Hosoi's series 8.2 per cent had cramps so severe that the patient doubled up and rolled about in extreme agony, simulating the symptoms of perforated ulcer. In 19 per cent pain was quite severe, but not as bad as in the foregoing group. These pains were described by the patients as being severe, sharp, knife-like, stabbing or griping in character. The acute pains were as a rule of short duration. In some instances they were generalized over the entire abdomen, starting in the epigastrium, umbilical region or right lower quadrant. This makes about 27 per cent in which pains were severe.

In 7.7 per cent there was definite pain in the epigastrium, right lower quadrant or sometimes in the right flank. In those cases with pain in the right flank or high in the right quadrant and radiating to the back, the appendices at operation were found to be retrocecal. Some of the patients with retrocecal neuromatous appendices complained of pain and tenderness in the right costovertebral angle. In 10.3 per cent the patients complained of dull ache in the right lower quadrant which was constant, intermittent or periodic. In most instances the pain was dull in character, and patients often described them as gnawing or nagging. Three and one-tenth per cent described the symptoms as slight discomfort in the right lower quadrant.

In the remaining 51.8 per cent no symptoms or signs referable to the appendix could be obtained in the past history because they were usually overshadowed by more important acute or chronic complaints. These constituted the following: cholecystitis, peritonitis, intestinal obstruction, omental bands, ectopic pregnancy, fibroid uteri, chronic pelvic inflammatory disease, endometriosis, uterine and ovarian malignancy, large ovarian cysts, relaxed pelvic floor, procidentia, duodenal ulcer, hernia, malignancy of the stomach and rectum and spinal cord lesions.

Tenderness was elicited in 39 per cent. Most of the tenderness was noted just above, just below or exactly at McBurney's point. Sometimes the whole right lower quadrant was tender. In one case the tenderness was in the midline above the pubis. In 9.2 per cent tenderness was marked.

Right rectus rigidity was present in 15 per cent; this varied from slight rigidity to a board-like abdomen simulating an abdominal catastrophe.

Nausea and vomiting were present in 12.8 per cent. The number of vomiting spells varied from one to many. Besides these symptoms some complained of indigestion and of feeling "sick in the stomach."

The temperature was normal or subnormal in all but 5 per cent of the cases, which had a temperature as high as 100 degrees Fahrenheit.

The pulse was normal in 50 per cent of the cases, and the remainder went as high as 100.

The respiration was normal in practically all the cases.

The white blood count in almost all the cases was within normal limits. Only in one did it exceed 10,000, but the differential count was within normal limits.

Constipation and diarrhea were both present, sometimes alternating. Thus, it seems that neuroma of the appendix may either stimulate or retard the intestinal tract.

CASE REPORTS

Case 1. R. W. H., age 44, was seen July 14, 1935, complaining of pain in right lower quadrant, radiating to the entire abdomen. The pain was aggravated by eating solid foods, by walking, running or jumping, and by riding in an automobile on a rough road. When on a liquid diet and lying in bed, he was quite comfortable. On several occasions he vomited. The symptoms began about one year ago as mild indigestion, but during the past two months they had become especially severe and incapacitated him from his work one or two days a week. At times these pains were very severe in character but only momentary.

Past history irrelevant. He had his tonsils removed in 1931. In 1933 he had an automobile accident, at which time he was injured mainly about the head, and he had considerable headaches for several months following. For the past year he has been entirely free from headaches and all of the symptoms referable to the accident had cleared up before the abdominal symptoms began.

During the past month he had lost five pounds in weight, from 141 to 136 pounds.

Physical examination revealed nothing of importance except definite tenderness in the right lower quadrant, just below McBurney's point, and moderate spasticity of the right rectus muscle. Rectal examination revealed slight tenderness on the right side. Temperature was 98 degrees, white blood count was about 6,000 and differential was within normal limits. The urine was negative.

The patient was given mild sedatives and told to eat the foods which seemed to make him most comfortable. However, the condition became worse and August 30 a gastrointestinal study was made, which revealed no abnormal condition.

The pain increased in frequency and severity, and it was finally decided to operate, as the patient demanded relief from the condition.

On September 9, the abdomen was explored through a right rectus incision, but nothing unusual was found. The appendix looked quite innocent, although it was fibrous in character with slight adhesions to the cecum. The patient made an uneventful recovery, and is very grateful for the complete relief he has obtained.

Before the pathologist made his report, I felt that this was probably a functional condition and what relief he might obtain would be mental rather than physical.

The laboratory report follows: Section shows an appendix with the subperitoneal and muscular layers regular, the submucosa moderately replaced by fatty tissue and no lymphatic tissue or mucosa present. The section contains a large amount of nerve tissue. Diagnosis: Neuroma of appendix.

Case 2. P. W. Willis, Jr., surgeon; patient, Mr. A. R., age 24, operated on December 28, 1935.

This patient's chief complaint was abdominal pain, nausea and vomiting. He had abdomnial pain since December 25. It was dull in character, but at times was crampy. He vomited the first night. Pain was felt in right upper quadrant. He had several attacks during the last year of pains and vomiting, but they were less severe. He continued his work to the date of operation. He had no history of diarrhea or constipation. Last bowel movement the day of operation. No hematemesis or melena.

Past history essentially negative.

Physical findings: Considerable rigidity in right upper rectus, tenderness over McBurney's area, no masses felt.

Laboratory findings: Leucocytes 6,100.

Pathologic report: Appendix with neuroma.

Case 3. R. E. Mosiman, surgeon; patient, Miss A. E., age 14, operated on December 31, 1935.

This patient had the first attack of pain twelve years ago and has had a few light attacks since that time. Complained only of pain in the right lower quadrant and slight nausea. The last attack started the day of operation.

Laboratory findings: Leucocytes 8,600; urine negative.

Preoperative diagnosis: Appendicitis with enterolith.

Pathologic diagnosis: Neuroma of the appendix.

Case 4. A. G. Friend, surgeon; patient, Miss I. E. G., age 36, operated on September 18, 1935.

This patient was operated upon for fibroid uterus. The preoperative symptoms were referable to the pelvic condition, and the appendix was removed routinely and found to contain neuroma. If this patient had any symptoms referable to the appendix, these were overshadowed by the pelvic condition.

Case 5. M. S. Jared, surgeon; patient, Miss M. R., age 24, operated on September 12, 1935.

This patient gave a history of having had ten or twelve attacks of pain in the right side, none of which had been very severe. She was first seen by Dr. Jared two days before operation, and complained of pain in right lower quadrant which had been present for five hours. The pain had come on suddenly and there had been a feeling of fullness in the abdomen during the previous twenty-four hours.

The first leucocyte count was 10,200 and in twelve hours had dropped to 5,400, but there was marked tenderness in the right side.

At operation a small appendix was found. The pathologic report was obliterated appendix with neuroma.

Case 6. D. H. Palmer, surgeon; patient, Mr. G. V., age 31, operated on July 3, 1935.

This patient had severe pain in the epigastrium with vomiting. At 7:00 a.m. on the morning of admittance to the hospital, he had terrible pain across the abdomen.

Physical examination: Tenderness in the region of the umbilicus and right side. Leucocyte count 15,900; polys. 75 per cent. Urine negative.

The appendix was found to be retrocecal, but grossly had no appearance of acute inflammation. Pathologic diagnosis: Neuroma of appendix.

Case 7. H. J. Green, surgeon; patient, Mrs. G. P., age 37, operated on April 2, 1935.

Past history: She complained of pain in abdomen, vomiting and irregularity of periods. The patient has had attacks of pain in right lower quadrant with vomiting since she was twelve years of age. She knew she had ovarian trouble, also.

Physical findings: Tenderness over the lower part of the abdomen.

A bilateral salpingoophorectomy was done as well as an appendectomy.

The pathologic diagnosis was retention cyst of the ovary, neuroma of appendix.

It is impossible to state what symptoms were referable to the appendix and what were produced by the pelvic condition. Dr. Green was apparently of the opinion that the appendix was involved as his preoperative diagnosis was chronic appendicitis and ovarian dysfunction.

Case 8. R. H. Loe, surgeon; patient, Mrs. M. McK., age 43, operated on June 16, 1935.

This patient's appendix was removed routinely at the time a subtotal hysterectomy was done for fibroid uterus. Dr. Loe stated there were no gastrointestinal symptoms referable to the appendix. In this case it seems that the neuroma produced no symptoms.

CONCLUSIONS

1. Neuroma of the appendix is a definite pathologic entity with variable clinical manifestations. The condition should be kept in mind in examining a patient with symptoms referable to the appendix.

2. Neuroma of the appendix is not an unusual finding and is present, according to Hosoi, in 80 per cent of obliterated appendices.

3. Some patients who have had relief from the removal of so-called chronically infected appendices probably had neuroma of the appendix. No appendix should be pronounced negative unless stained for nerve tissue, preferably by Masson trichrome stain.

4. Before a tentative clinical diagnosis of neuroma of the appendix is made all other conditions simulating appendiceal involvement should be carefully excluded.

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EDITORIAL

A VICIOUS INITIATIVE BILL

A number of years ago compliant and indulgent Washington legislatures passed bills legalizing most of the existing irregular forms of treatment of the sick. Among them was "sanipractic," devised by John E. Lydon, at one time a resident of Spokane, and later of Seattle. He established the "American University of Sanipractic" in Seattle, where with a number of coadjutors he pretended to educate students in a fantastic method of treating the sick, diplomas for which were issued for sums ranging from a few dollars up to $500. In 1925 the franchise of this school was declared forfeited by the Court and Lydon was found to have engaged "in the wholesale and fraudulent sale of diplomas." In 1926 he attempted to get sufficient signatures to put an initiative bill on the ballot at the fall election to reinstate his institution, but was unable to acquire the requisite number. Since passage of the Basic Science Law in 1927, Lydon and his supporters have introduced bills at every session of the legislature aiming to revoke this law, as none of his followers have been able to pass the requisite examination, none of which were given serious consideration.

Now initiative measure No. 111 is being circulated by the "American League for Medical Freedom," all the incorporators of which except one are Seattle residents, including John Lydon and four men formerly connected with his fraudulent "college." This Act would make it "unlawful for any tax-supported, charitably-supported or tax-exempt hospital or institution to deny to any duly licensed doctor, physician or surgeon of sanipractic, osteopathy, chiropractic, food science, psycho-therapy, mechano-therapy, physcultophy, medicine or surgery, the right to practice his profession in such institution." Also admittance shall be made to any person applying for admission regardless of financial condition. Any physician, surgeon, doctor, or practitioner of any method of healing who may conspire to defeat the purpose of this Act shall be guilty of a gross misdemeanor and on conviction shall be fined $50 to $250. Furthermore, it shall be unlawful for anyone to conspire to bring, or cause to be brought, any action in court against any licensed doctor, physician, surgeon, or practitioner for alleged malpractice. This sweeping provision is qualified by the modification that nothing shall prevent any licensed doctor, physician, surgeon or practitioner from testifying against any other licensed practitioner in any action for alleged malpractice. The provisions of this Act shall not apply to Federal hospitals nor christian science practitioners, whose right to practice has never been established by legislative action and therefore are not licensed.

The above statements are sufficient to illustrate the vicious character of this bill. The necessity of getting 50,000 signatures presents considerable of a task for its proponents who are industrially engaged in circulating petitions in all parts of the state. In the meantime the medical profession should familiarize itself with the provisions of this initiative bill and be prepared to explain it to those seeking information. The requisite number of signatures must be filed with the Secretary of State by July 3. If this is accomplished an active campaign for its defeat at the November election will be in order.

THE GREATEST MEDICAL LIBRARY

During recent years a large proportion of the medical profession has become library-conscious. More physicians are realizing the fact that medical progress is based on facts established in the past, about which the only means of obtaining information must depend upon familiarity with medical literature. No physician can hope to acquire a sufficient number of books to provide adequate opportunities for study and investigation. This can be attained only by access to a medical library abundantly equipped with books and especially with files of medical journals. Their inspiration for establishing such libraries is found in the incomparable Army Medical Library in Washington, whose one hundredth anniversary is being celebrated this year.[1] The growth and development of this library were due primarily to the leadership and constant efforts of John Shaw Billings who served as librarian 1868-1895. At the present time this great library has accumulated nearly a million volumes, the greatest collection of medical books in existence. These include books and medical journals in all languages of the world. Practically everything in medical literature is on file in this institution. An interesting feature of this library is the collection of books known as incunabula, from the Latin word for cradle, referring to books printed before 1500 when printing was in its infancy.While some six hundred medical incunabula are known to exist, this library has copies of about four hundred and fifty. Every library treasures its incunabula above all volumes in its possession.

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[1] Hume, E. E.: The Centennial of the World's Largest Medical Library: The Army Medical Library of Washington, founded 1836. Mil. Surgeon, 78:241-267, April, 1936.

The most important work instituted by Dr. Billings and carried on persistently to the present time is the Index Catalogue of the Library of the Surgeon General's Office. This index contains information obtainable in no other published volumes. The first series, completed in 1895, assembled information on every medical topic on which anything had been published to the date of completion of each volume. Thus, under clavicle, fractures of, there were listed books, theses, articles in medical journals of the world and everything that had been collected on this topic from early days down to the date when this particular volume was printed. Since that time, at intervals of about fifteen years, the second and third series have been published. Volume I of the fourth series will soon make its appearance. Every topic in each of these series lists everything which has been published since its appearance in the preceding series. The library now receives about two thousand medical journals, indexing every worthwhile article in every issue of every journal of almost every country in every civilized language. In addition to these are indexed books, theses, pamphlets and documents.

Years ago Osler told of the worn and bethumbed volumes of the Index Catalogue in foreign medical libraries. It is said to be the working tool in constant use in the cities of Europe, Asia, and South America. In the British Museum this Index Catalogue is regarded as the greatest ever achieved, being more complete than any other subject index ever published. Welch stated that the four great contributions of this country to medical knowledge were discovery of anesthesia, discovery of insect transmissions of disease, development of modern public health laboratory and the Army Medical Library with its Index Catalogue, and the last one enumerated, he added, is the most important of the four.

Mention should be made of the Index Medicus which Billings established in 1879. This was published monthly, presenting in an abbreviated form material similar to that of the Index Catalogue. In 1927 the Index Medicus was merged with the Quarterly Cumulative Index, founded by American Medical Association in 1916. The Quarterly Cumulative Index Medicus now published by American Medical Association is the practical working index, indispensable in every working library. These facts are but a few pertaining to the Army Medical Library suggestive of its supreme value, not only to the medical profession of the United States to which it is indispensable, but also its importance to the medical profession of the world.

In reviewing the history of this great library one is impressed by the personality of Billings, the great work which he accomplished and the regard in which he was held by library workers throughout our land. Not alone in medical libraries, but in public libraries in various parts of the country, his services were enlisted and his advice sought. He had charge of the vital and social statistics of the Tenth and Eleventh Censuses and it is stated that his efforts had much to do with the transformation of the old Marine Hospital Service into the modern United States Public Health Service.

SUMMER POSTGRADUATE LECTURES

During the coming summer the profession of our Northwestern states will be offered unusual programs of postgraduate lectures which should serve as notable attractions for those seeking latest information on many phases of practice. Pacific Northwest Medical Association, which holds its fifteenth annual meeting at Portland, July 8-11, will assemble the largest number of distinguished lecturers which have appeared on any program in this section. By reference to the advertisement on page seven of the advertising section of this issue, the names of these lecturers can be noted with the institutions with which they are connected and the subjects which they will cover. One has the privilege of attending all of these lectures or selecting those bearing on the special line of practice in which he is interested. The fee for attendance of these lectures is placed at $15, covering all the expense except the annual banquet, but if one wishes to obtain membership in advance, the cost will be $12.50. The many attractions in Portland and vicinity are well known to physicians of the Northwest and this meeting will offer an opportunity to take advantage of them. This gathering will provide an unusual opportunity for social contact and meeting friends from a wide area of the Northwestern states.

The University of Washington Graduate Course of Medical Lectures and Clinics will hold its twentieth anniversary meeting in Seattle, July 20-24. These lectures comprise the University activity for medical education offered the physicians of Washington and neighboring states, from which there are always some in attendance. The faculty this year includes four prominent medical educators. By reference to the advertisement on page seven in the advertising section, one can note the names of the lecturers, the institutions with which they are connected and the subjects of their respective addresses. This year for the first time neuropsychiatry is included which should be of great interest to general practitioners. The low fee of $10 for this course, which covers all expenses, has been made possible by cooperation of the University, the county medical society and King County Hospital. The offiical banquet of the first evening, as well as the daily no-host dinner followed by a lecture by one of the faculty are scheduled at the Hotel Meany in close proximity to Guggenheim Hall in the University, where the lectures will be delivered. Accommodations for the visiting lecturers and physicians are available in this hotel. A trip to Mount Rainier on Saturday following the lectures is a customary feature of the meeting.

The Pan-Pacific Surgical Congress, scheduled for Honolulu, August 6-14, offers an unusually enjoyable excursion for those who can take advantage of it. On page six of the advertising section of this issue will be found necessary information concerning this summer trip and should be consulted by all who have it in contemplation. Beside the interesting and extensive scientific program, the unusual attractions of the sea voyage together with the interesting features at Hawaii will make it a worthwhile excursion for anyone seeking a new summer experience.

The final postgraduate lectures scheduled for the summer constitute the program of the annual meeting of the Idaho State Medical Association at Boise, August 31-September 2. This year will be repeated the plan inaugurated a year ago of presenting a course of postgraduate lectures by distinguished physicians from various parts of the country in place of the customary program of papers by members of the association. The details of this program and its attractions will be duly presented in subsequent issues.

OREGON PUBLIC ASSISTANCE PROGRAM FOR AGED AND BLIND

The Oregon Public Assistance program for aid of the needy aged and needy blind was approved by the Social Security Board of Washington on March 31 and went into operation April 1. State officials estimate that for the first three months aid will be given to ten thousand needy aged and three hundred blind individuals, the federal grant for the aged being $393,750 and for the blind $11,812. Each of these grants will be matched by equal amounts appropriated by the state. To date the Social Security Board has approved public assistance plans in thirty states and the District of Columbia, including twenty-eight state plans for aid of the needy aged, nineteen for aid of needy blind, and eighteen for aid of dependent children. More than half a million persons in these thirty-one jurisdictions are directly affected and federal contributions during February and March amounted to more than $6,900,000. Under terms of Social Security Act these cash payments are provided for these dependent persons in their own homes or the homes of relatives. A single state agency must administer the plan or supervise it if adminstered by counties.

AMERICAN MEDICAL ASSOCIATION BROADCASTS FROM THE KANSAS CITY SESSION

Special radio programs will be broadcast from Kansas City during the week of the annual session.

NATIONAL BROADCASTING COMPANY

The following programs will be delivered over a network of the National Broadcasting Company:

May 11, 4:30 p.m.: "Nutrition and the Future of Man," by Dr. James S. McLester, president of the American Medical Association. Fifteen minutes.

May 12, 4 p.m.: Medicine Marching Forward. The regular dramatized program Your Health (originating in Chicago), based on papers or exhibits presented at the convention. Thirty minutes.

May 13, 12 noon: An interview about the Scientific Exhibit with Dr. Morris Fishbein. Fifteen minutes.

COLUMBIA BROADCASTING SYSTEM

The following programs will be broadcast over a network of the Columbia Broadcasting System:

May 11, 1:30 p.m.: An interview with one or more distinguished foreign visitors by Dr. Morris Fishbein. Subject to be announced. Fifteen minutes.

May 15, 2 p.m.: A news broadcast outlining the main events of the convention. Dr. W. W. Bauer. Fifteen minutes.

The hour given is central standard time; eastern standard time is one hour later, mountain time being one hour earlier, and Pacific time two hours earlier.—*Jour. A.M.A.*, April 18, 1936.

MEDICAL NOTES

American Society for Control of Cancer was represented last month by the visit of C. C. Little, its director, who appeared both in Seattle and Tacoma before meetings of physicians and public audiences. The topic was "The Fight Against Cancer." In a very fascinating manner he described experiments and observations in the production of cancer in an endless number of mice, illustrating the heredity tendencies under various combinations among cancerous and noncancerous strains. This work is one step in the possible discovery of the cause of this widespread disease.

American Association for the Study of Goiter will hold its annual meeting in Chicago, June 8-10. The tentative program includes twenty papers presented by twenty-four authors from various parts of the country. Numerous aspects of the goiter problem will be presented which will be of interest to every physician dealing with the goiter problem.

OREGON

Drive Against Venereal Disease. A state-wide drive to control venereal disease in Oregon has been instituted under direction of state health officer Frederick D. Stricker. A letter has been sent to all physicians of the state urging cooperation in the effort to stamp out such diseases. The law requires report to the State Department of Health of all cases of venereal disease. The burden of control is placed on the local health departments. Names and addresses of sources of infection are to be sent to local health officers. Suspected persons refusing examination may be isolated at the discretion of the health officer.

Condition of Insane To Be Improved. The State Board of Control has appointed a committee with Richard B. Dillehunt, dean of University of Oregon Medical School, as chairman, to outline a program of curative and preventive work involving mental cases of the state. This program will be presented to the next session of the legislature.

Oregon Tuberculosis Association held a meeting at Portland, April 2, with an attendance of more than 200 delegates, representing many county health associations, Frederick D. Stricker, State Health Officer, presiding. The guest of the meeting was J. Arthur Myers of Minneapolis, Professor of Medicine at University of Minnesota. He is a well known authority on tuberculosis, having written books and many papers on this subject. He delivered a number of addresses bearing on features of tuberculosis.

State Board of Medical Examiners held a meeting at Portland, April 2. It considered various matters, including revocation of licenses and charges of unprofessional conduct. Charles C. Newcastle was elected president for the ensuing year, Joseph F. Wood, secretary, and L. S. Besson, treasurer, all of Portland. Other members of the board are E. D. Johnson of Klamath Falls, Carl G. Patterson of Baker and J. L. Ingle of La Grande.

New Hospital Started. Construction has begun for the basement and foundation of the new Lebanon General Hospital, with a contract calling for completion for the middle of June. It is located just south of the present building. It will have floor space 96x38 feet, containing three wards and six or eight rooms with capacity of twenty-eight beds. The two buildings will be connected, the older one being converted into a nurses home.

New Hospital Planned. The first unit of a new hospital at Silverton is under consideration. It will be a one-story building costing approximately $20,000. The present location of the old hospital will be utilized and this building will be used for nurses quarters when the new hospital is completed. It will accommodate twenty-five beds with the usual equipment and arrangements for a modern institution.

New Hospital Opened. The Waldport Community Hospital has been opened for reception of patients in the town of the same name. It is a modernly equipped institution, occupying a sightly location.

WASHINGTON

Washington State Radiological Society held its regular monthly meeting Monday evening, April 27, in Seattle, starting with dinner at the College Club. Frank E. Butler of Portland presented a paper on "The Results of Treatment of Two Thousand Selective Cases of Sinus Disease by X-Ray." R. D. MacRae of Tacoma demonstrated a method of measuring the maternal pelvis and fetal skull in cases of abnormal labor. Mr. Rose demonstrated methods of detecting stray radiation emanating from either x-ray or radium sources. Attending from Eastern Washington were Arthur Betts of Spokane and G. W. Cornett of Yakima.

Interesting Political Squabble. In Bellingham is being enacted an entertaining controversy over the county health officer situation. A. M. Sonneland was appointed by the county commissioners for a two-year term. It seems that all appointees were obliged to deposit with the county commissioners signed resignations to be used when considered necessary. When county officials desired to displace Dr. Sonneland, his signed resignation had disappeared. Claiming that he was responsible for the loss of the document, it was proposed that he should be arrested and prosecuted. His reported comment was, "They had better keep their shirts on before accusing me of a crime," and he continues to retain the office. There are many published comments of "light wing" and "right wing" complicating the situation. In the meantime an interested and amused public will await results.

Harry A. Gilbert, formerly of Childress, Texas, has located in Mount Vernon, where he has taken the office and equipment of Clarence E. Kjos, recently deceased. After obtaining his medical degree from George Washington School of Medicine, Washington, D.C., he served as interne at Swedish Hospital, Seattle, later locating in Texas.

Hospital Project Cancelled. The plan proposed by Whatcom County Commissioners of converting the old Fairhaven Hotel at Bellingham into a tuberculosis hospital has been cancelled by the State Administrator of Works Progress Administration. There was much contention over the plan of transforming this antiquated hotel into a hospital for treating tuberculous patients. The building itself seemed entirely unfit for such a project and would have entailed a large expense.

J. J. Marren, graduate of University of Minnesota and interne at Minnesota General Hospital, has served in the King County Hospital for the past eighteen months. He has located in Olympia where he has taken the office of J. L. Paine, recently deceased.

J. A. Towlan, who has recently practiced in New Mexico, has located at Mason City where he will be on the staff of Mason City Hospital.

W. K. Jacoby, who has practiced in Evanston, Wyo., has moved to Aberdeen where he will engage in future practice.

Wedding. Van A. Odle of Spokane was married to Miss Opal B. Martin of that city March 30. Dr. Odle graduated from Medical Department of University of Tennessee and after serving interneship at Sacred Heart Hospital, Spokane, located there for practice in 1934.

IDAHO

Hospital Addition Under Construction. The addition to Samaritan Hospital, Nampa, will be ready for service in September. The new building will contain fourteen private rooms and three wards, making the total hospital capacity seventy-five beds. The new building will cost about $30,000, some of which is provided from outside sources, but chiefly by local contributors.

Infirmary. University of Idaho has again called for bids for an infirmary to be built at Moscow to cost $118,000, previous bids having been rejected on account of their figures being too high. The building will be 104 feet long, of steel and brick construction, one wing four stories high, the other three being three stories.

Maternity Home Opened. Twin Falls Hospital has opened for public use the new maternity home, built of stucco and lava rock, 53x40 feet in dimension, containing two wards with a total of fifteen beds. This building was constructed by WPA employees with the assistance of local organizations. The hospital is equipped with all modern appliances for obstetrical work.

Hospital Wing To Be Constructed. A new wing will be built to Mercy Hospital, Nampa, which the Sisters of Mercy will dedicate to Hugh P. Ross, pioneer physician of that city. He served as secretary to the staff of Mercy Hospital since its organization. The Ross Memorial Wing will be a two-story and basement building, 38x120 feet and will cost approximately $50,000.

Addition to County Hospital. A substantial addition has been completed to the county hospital at Filer, designed especially as a maternity home. It is a 40x53-foot structure, containing two wards and three private rooms with a capacity of fifteen beds. The new building is provided with modern furniture and equipment for the care of mothers and babies. This is in addition to the general hospital which has a capacity of fifty beds.

State Medical Examining Bureau held a session in Boise April 7, when fourteen applicants appeared before the board. Ten of these, licensed in other states, applied for Idaho permits through presentation of credentials.

OBITUARIES

Dr. Clarence E. Kjos of Mount Vernon, Wash., died suddenly March 26, aged 36 years. He was in his usual health the previous day and evening and was found dead in bed, death supposed to have occurred a few hours previously. Autopsy disclosed an acute pneumonic condition, thought to be influenzal in character, causing fatal cardiac complications. He was born in Mayville, North Dakota, in 1899. He obtained his medical degree from Rush Medical School, University of Chicago, in 1924. After serving internship at St. Paul, Minn., he practiced in Austin for two and a half years. After taking special study in New York in eye, ear, nose and throat work, he spent six months in Tacoma and Seattle and located in Mount Vernon in 1929. During his six years residence he won the respect of all who knew him, being a leader not only in medical matters, but in civic affairs. He served as president of the Kiwanis Club, besides being prominent in many other civic and social organizations.

Dr. Michael J. Maguire of Yakima, Wash., died at St. Vincent's Hospital, Portland, April 13, after an illness of several months, aged 53 years. He was born in Iowa in 1883. As a child he lived for a number of years in Spokane. He obtained his medical degree from St. Louis University School of Medicine in 1913. After serving as hospital interne, he located for practice at Naches in 1913 and moved to Yakima in 1921. He had been in poor health for several months and left for California for recuperation. At Portland he was obliged to stop for hospital treatment where his death occurred. He was one of the best known practitioners in his part of the state and had the confidence of the public and the medical profession, to all of whom his passing is a marked loss.

Dr. Lorenzo Walter of Spokane, Wash., died March 25 from a fall from a third story hospital window, where he was a patient, aged 35 years. He had been ill for five weeks from blood poisoning following a scratch. He obtained his medical degree from Northwestern University Medical School in 1928, later continuing his studies in Vienna. After practicing for a time at Evanston, Ill., he located in Spokane in 1930, as an eye, ear, nose and throat specialist. For six years he was a flight surgeon in the National Guard Aviation Corps.

Dr. Russell Truitt, who has recently practiced at Southwick, Idaho, died at Lewiston, April 19, from disease of the heart, aged 83 years. He obtained his medical degree from Eclectic Medical College of Cincinnati in 1877. He was the oldest member of Idaho State Medical Association. He located for practice in Portland, Ore., in 1877, later moving to Walla Walla where he was state prison physician. He has continued in active practice until recent times.

Dr. Irvin I. Davis of Portland, Ore., died April 6, aged 24 years. He was born in Portland, Ore., in 1912. After studying at Reed College, he graduated from University of Oregon Medical School in June, 1935. Until a short time before his death he had served as interne at Mount Sinai Hospital, New York.

The Gordon Test for Hodgkin's Disease. David H. Rosenberg and Leon Bloch, Chicago (Journal A.M.A., April 4, 1936), record their results with the Gordon test in three cases of Hodgkin's disease and in three other lymph nodes used as controls (metastatic adenocarcinoma; aleukemic lymphadenosis; lymphoid hyperplasia). The test was positive in two cases of early Hodgkin's disease and negative in a chronic case of one year's duration. The three abnormal lymph nodes, used as controls, gave negative tests. From the reports in the literature the test has been applied in seventy-seven cases of Hodgkin's disease and has been found positive in fifty-six instances (77.9 per cent). Of 101 controls, consisting of normal lymph nodes and nodes showing carcinoma, sarcoma, lymphosarcoma, "pseudoleukemia," leukemia, tuberculosis, lymphoid hyperplasia and adenitis, the test was negative in ninety-eight cases (97 per cent) the three positive tests having been reported reccently by Manson, two of which were cases of tuberculous lymphadenitis and one was of lymphoid hyperplasia.

REPORTS OF SOCIETY MEETINGS

WASHINGTON

COWLITZ COUNTY MEDICAL SOCIETY

Pres., J. W. Henderson; Secty., A. F. Birbeck

Cowlitz County Medical Society held a meeting at Longview, April 14. The society met with the auxiliary at a dinner at Hotel Monticello. A full attendance of the society was present. No scientific papers were given but business matters were entered into regarding the coming meeting of the State Medical Association in August. Several of the members signified their intentions of attending this meeting.

This was a very enjoyable meeting, and it was arranged to meet next month at the country home of J. W. Henderson. Dr. Henderson announced that the Cowlitz County Medical Bureau had received a contract from the Weyerhaeuser Timber Company, which it is felt will be a great help to the bureau.

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

King County Medical Society held a regular meeting in auditorium of Medical Dental Building, Seattle, April 6, President Forbes presiding. Minutes of previous meeting were read and approved.

David C. Hall read a paper on "Early Carcinoma of the Breast Found by Flat Plate of the Lung." The object of the paper was to call attention to the possibility of detecting early primary cancer of the breast by means of the roentgenogram. The patient, 40 years of age, had a diagnosis of pulmonary tuberculosis. The roentgenogram disclosed an irregular outline in the left breast. This led to a diagnosis of carcinoma, which was confirmed at operation. As a result of this case, a second one was later successfully diagnosed. Quotations of similar cases were given from the literature. The paper was discussed by Frederick B. Exner.

Paul Whelan presented an address on "Use of Insulin in Acidotic Conditions." He referred especially to prolonged fevers and intoxications where acidosis, dehydration and malnutrition are present. He quoted reports of use of insulin in malnutrition of children, adults who are underweight, its use in typhoid fever, diphtheria and other conditions. A case was reported of erysipelas of the face where delirium and hyperpyrexia were apparently relieved by the injection of insulin. In periodic alcoholism insulin is useful in the sobering-up process. The paper was discussed by C. F. Davidson, E. S. Reedy and Hamilton Stillson.

S. N. Berens discussed "Head Injuries." Advancing age brings gradual tissue fibrosis with head injuries. Every means should be taken to prolong life in these cases. Anoxemia was discussed and treatment described. This condition in basal vital centers may result from prolonged shock, edema or hemorrhage. The paper was discussed by Hale Haven, C. F. Davidson, and David Metheny.

Miss Jean Greer presented a motion picture entitled "A Day With a Visiting Nurse."

PIERCE COUNTY MEDICAL SOCIETY

Pres., J. R. Turner; Secty., W. B. Penney.

The regular meeting of Pierce County Medical Society was held at the Veterans' Hospital, American Lake, April 14, with J. R. Turner presiding.

H. F. Engels spoke of the coming political campaign and read a letter from the osteopathic society giving their reasons for opposing Referendum No. 111.

The following program was presented by the personnel of the Veterans' Hospital: "Chemotherapy for the Psychoses," by C. L. Whitmire; "Cerebrospinal Hydronynamics," by Norman C. Mace; "Arterial Thrombosis, Case Report," by C. A. Hunsaker. These papers were all of the greatest interest and were well received. After the meeting the ladies of the hospital served coffee and sandwiches, which were very much appreciated.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., F. W. Baugh; Secty., Harold Hopke

Skagit County Medical Society held a meeting at Mt. Vernon, April 6, in conjunction with a meeting of Skagit County Medical Service Bureau. The program consisted of a paper by George C. Miller of Seattle on the subject of pneumonia. Henry Odland of Seattle discussed "Some Phases of Skin Disease." General discussion followed the papers.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., O. R. Allen; Secty., E. J. Van Buskirk

Snohomish County Medical Society held its regular monthly meeting in Everett, April 2, President O. R. Allen presiding. Paul Whelan of Seattle presented a paper, "The Use of Insulin in Acidotic Conditions." A general discussion followed the presentation of the paper.

SPOKANE COUNTY MEDICAL SOCIETY

Pres., F. G. Sprowl; Secty., M. F. Harris

Spokane County Medical Society held a dinner meeting in Desert Hotel, Spokane, April 9, President Sprowl presiding. There was an attendance of about one hundred. Preceding the meeting, in the afternoon, H. H. Skinner of Yakima held an obstetric and gynecologic clinic. In the evening R. E. Watkins and G. C. Schauffler of Portland, both from University of Oregon Medical School, presented technical discussions on obstetrics.

TACOMA SURGICAL SOCIETY held its eighth annual scientific session April 11. The guest of honor and featured speaker was Howard L. Beye, professor of surgery at University of Iowa School of Medicine. Demonstrations and addresses were presented at morning and evening meetings at Medical Arts Building by Tacoma surgeons. The general symposium topic was "Surgical Pitfalls and Their Prevention."

WEDDING. Herbert E. Goldsmith of Portland was married to Miss Lucile Catlin of Kelso, Washington, in the latter city, April 8.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly dinner meeting of Walla Walla Valley Medical Society was held at Grand Hotel, Walla Walla, April 9. Fifty physicians were present, including two pioneer physicians of the Inland Empire, H. R. Keylor of Walla Walla and E. H. Van Patten of Dayton. A number of physicians from the Pendleton district were also in attendance.

V. G. Backman of Pasco, vice-president, presided and introduced the speaker, Laurence Selling, neurologist and clinical professor and head of the Department of Medicine, University of Oregon Medical School, Portland. He discussed "Anxiety Tension State and Its Treatment" which belongs to a group of psychoneuroses in which no apparent organic cause or lesions can be found. He went into detail regarding symptoms, diagnosis, physical examinations and treatment, picturing patients and their conditions in a most concise and unusual way, so that it was easy for the audience to follow the discussion about this important side of the practice of medicine which is relatively little known and understood by the average physician and surgeon.

The next meeting of the society will be held May 14 at the United States Veterans' Hospital auditorium, at which time members of Washington State Medical Association Tuberculosis Committee will present and discuss "The Control of Tuberculosis." In addition will be a motion picture covering "Modern Methods of Anesthesia" with reference to rectal, spinal, and intravenous anesthesia.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull.

The regular meeting of Yakima County Medical Society was held at the Commercial Hotel, Yakima, April 13th. The usual dinner preceded the meeting. Twenty-nine members and two visiting physicians were present.

Resolutions were adopted by the society on the death of Dr. M. J. Maguire.

The scientific program was on the Control of Tuberculosis. John E. Nelson of Seattle presented "The Diagnosis of Tuberculosis," illustrated by lantern slides. Howard L. Hull, presented "The Treatment of Tuberculosis," also illustrated by lantern slides. Discussion followed by Drs. Ross, Shirey, Bittner, Cerswell, Lewis and Lugar.

IDAHO

NORTH IDAHO DISTRICT MEDICAL SOCIETY

Pres., P. E. Haury; Secty., J. F. Gist

North Idaho District Medical Society held a meeting at Moscow, April 15, following a dinner at Moscow Hotel. The program consisted of a case report by F. C. Gibson of Potlatch on "Phytobezoar Following Ingestion of Persimmons." R. F. Stier of Spokane read a paper on "Bacteriology of Arthritis." Donald Palmer of Spokane discussed "Pernicious Anemia, Polyposis and Carcinoma." Norman Brown of Spokane discussed "Low Back Pain."

While the meeting was in progress the Woman's Auxiliary held a meeting with thirteen members present. Officers were elected for the ensuing year.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

On April 1 the monthly meeting of the Council of Oregon State Medical Society was held at Campbell Court Hotel, Portland. It was announced that Lane County Medical Society was holding a special meeting April 2 to discuss medical ethics, especially as it applies to contract praotice, hospital associations and solicitation of patients. Thomas W. Watts, president-elect of the Society, and John H. Fitzgibbon, delegate to the A.M.A., will address the meeting. (Reports of the meeting indicate a good attendance and a clarification of the atmosphere in regard to these points.)

Chas. T. Sweeney reported that he had visited all the county societies in his councilor district which had a larger membership than at any previous time.

Thompson Coberth was appointed chairman of the local Committee on Arrangements for the annual state meeting this fall in The Dalles.

James M. Odell of the State Tuberculosis Hospital, The Dalles, reported, following a survey of the tuberculosis institutions, that 69 out of every 150 cases in the state institutions are active, and that 20 are chronic incurables, 21 pneumothorax, and 40 homeless, and that these three later groups could be best cared for in convalescent homes where the cost is less than one-third that for treating active cases.

The next meeting of the Council will be held in Klamath Falls, May 2, 6:30 p.m., at the Willard Hotel. All physicians who attend the meeting of Southern Oregon Medical Society which meets in that city on the same day are invited to meet with the Council. Southern Oregon Society has a one-day program and should attract a large attendance. Edward C. Bull, Assistant Professor of Orthopedic Surgery, University of California Medical School, and LeRoy H. Briggs, Clinical Professor of Medicine, University of California Medical School, are the principal speakers.

Another meeting of importance is that of Eastern Oregon Medical Society which will be held in La Grande, June 27. A very excellent program has been prepared. All members of the Society are invited to attend both of these meetings.

Arrangements for the July 8 to 11 meeting of Pacific Northwest Medical Association in Portland are so far concluded that those who attend are assured an unusually good program. Physicians from all over the Pacific Northwest are invited to attend.

Closing the year of outstanding meetings is the meeting of Oregon State Medical Society in The Dalles next fall. These programs, together with that of the Alumni Association of the University of Oregon Medical School which was held in March, give to the physicians and surgeons of this community a postgraduate course such as they could ill afford to miss. No subject of importance has been overlooked in this series. Attending medical meetings is more or less of a habit which when cultivated brings a high yield at low cost. The very mention of the names of any of these societies in itself assures a worthwhile program.

A. G. Bettman, *Editor.*

WASHINGTON

WOMAN'S AUXILIARY

A Canadian motif pervaded the eighth of a series of "national teas" being sponsored by the Pierce County Auxiliary. Their April assembly was at the home of Mrs. Edwin Janes, where a business meeting was followed by a talk by Mrs. Burton Brown on "Canada and Canadian Contributions to Medical Knowledge and Practice." Mrs. Howard Gregory sang a group of modern English songs.

King County Auxiliary held its April meeting in the Auditorium of the Medical and Dental Building. Dr. Brien T. King spoke on "The Activities of the American Medical Association" and Mrs. Otis Floyd Lamson addressed the members on the subject of the Auxiliary itself, its relation to the American Medical Association and the duty of the National organization to the State and County Auxiliaries.

Yakima Valley Auxiliary reports great activity in preparation for the state meeting in the fall. It is hoped that all county units will send delegates and that county presidents in particular will plan to be there to acquaint themselves with the new state president and her program. Mrs. Blair has stated that this would be of inestimable value to the smooth functioning and progress of an incoming president's program.

Walla Walla Valley Auxiliary held its April meeting at the Grand Hotel. A 6:30 dinner was followed by a program directed by Mrs. Wesley V. Frick, Chairman of the History Committee. The medical society is so kind as to announce the Auxiliary meeting in the notice sent to the doctors, a very nice gesture to the ladies.

Mrs. George E. Hoxsey,
Press and Publicity Chairman.

BOOK REVIEWS

Arthritis and Rheumatoid Conditions. Their Nature and Treatment. By Ralph Pemberton, M.S., M.D., F.A.C.P. Professor of Medicine in the Graduate School of Medicine, University of Pennsylvania, etc. Second Edition, Thoroughly Revised. Illustrated with 69 Engravings and a Colored Plate. 455 pp. $5.50. Lea & Febiger, Philadelphia, 1935.

In general, the author's view of arthritis is reflected in a report of the American Committee for the Control of Rheumatism. The problem is stated as follows: (1) "The disease chronic arthritis, prevalent in all temperate zones, represents one of the most important, if not the most important, of existing social and industrial handicaps. (2) The Committee conceives of the disease as a generalized disease with joint manifestations. Certain prodomes may be recognized and it is of vital importance that they be recognized. (3) It is the opinion of the Committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The Committee inclines to the belief that any one of these factors, or certain combinations of them, under appropriate circumstances, may basically underlie the onset of the disease. (4) The Committee feels it of vital importance that the medical profession have its attention directed to the methods of treatment of proved value which are at present at its disposal. In spite of etiologic uncertainties, the Committee feels that properly managed therapy, which takes into account both infectious and metabolic factors, has yielded results which encourage optimism and impose the obligation of further developing such methods."

The book carries out a detailed discussion of the etiology, pathology, clinical aspects and treatment of arthritis. Inasmuch as arthritis is undoubtedly a generalized, toxic condition, complications may occur in any of the major organs. These are taken up separately.

Treatment is naturally indefinite as would be consistent with such a generalized and varicomplicated disease. The role of diet, colonic irrigations and physical therapy are all treated with considerable detail. For the first time the author has thoroughly recognized the role of vaccine therapy as an adjunct to the treatment of arthritis. Lastly drugs and medicinal measures, and again the discussion is very broad, consist of a discussion of various drugs such as arsenic, iodine, salicylates, quinine, cod liver oil, etc., in relation to their possible use. Considerable space is given to endocrines and their relationship to this disease.

To thoroughly appreciate the book one must be in the frame of mind to consider arthritis as a systemic disease with joint symptoms rather than an entity with primary joint involvement. For such a physician it is not only pleasant but instructive reading. Jeffery.

Post-Graduate Surgery. Edited by Rodney Maingot, F.R.C.S. (Eng.), Senior Surgeon to the Royal Waterloo Hospital and to the Southend General Hospital, etc. With an Introduction by The Right Hon. Lord Moynihan of Leeds, K.C.M.G., C.B., M.S., F.R.C.S., Late President of the Royal College of Surgeons. Volume I, with 846 Figures in the Text, 1742 pp. $45.00 for set of 3 volumes. D. Appleton-Century Company, Inc., New York, 1936.

This is the first of a three-volume series from England, attempting to cover as far as possible the whole field of surgery in a practical manner. The volume is large and nicely bound; the printing is excellent and easily read; illustrations throughout are numerous and clear, depicting special instruments and apparatus, various steps in operations and many pathologic specimens. Each subject is covered by a specialist who presents it in a concise manner, confining his discussion to those phases which have chiefly clinical application. Dr. Maingot himself has written several of the articles. The index and bibliography are only fair and, as is common in editions of this kind, there are occasional omissions.

English practice is sometimes at variance with that of many Americans, although the views expressed do not detract from the pleasurable reading or value to the American surgeon. The first part of this volume is written by C. Langton Hewer and deals with the subject of anesthesia. The second and larger part deals with common abdominal conditions. Of considerable value are the discussions in gastric surgery with the accompanying illustrations.

Part three deals with surgery of the rectum and anus and includes the very valuable article by Miles, whose one-stage method of abdominoperineal resection of carcinoma of the rectum is so successful. He outlines his careful pre- and postoperative treatment and abundantly illustrates the various stages of his operation.

The fourth part concerns roentgen diagnosis of the alimentary and urinary tract, while the fifth and last part describes modern radiotherapy of malignant disease. The volume is an outstanding effort and should fill a definite need for those seeking a reliable practical work on modern general surgery. Forbes.

Röntgenology. The Borderlands of the Normal and Early Pathological in the Skiagram. By Alban Köhler. Prof. Dr. Med., Wiesbaden. Ex-President and Honorary Member of the German Röntgen Society, etc. Second English Edition revised by the Author. Translated and Edited by Arthur Turnbull, M.A., B.Sc., M.D., Ch.B. (Glasg.). Ex-Demonstrator of Anatomy, University of Glasgow. 681 pp. $14. William Wood & Co., Baltimore, 1935.

There is one phase of roentgenology in which the author excels, a thoroughness in description of anatomic structures as viewed from a roentgenologic standpoint. This holds true particularly as regards the description of bones. There are times when there is a necessity to cite an authority in drawing a distinction between the normal and that which borders on the normal. This book so clearly and so completely describes the normal and slight variations in words and by line drawings that we can always quote this authority with confidence. For this reason the material in this book regarding bones is invaluable to the medical witness in disproving a contention that pathology exists where the condition actually is normal.

A few of the author's opinions are at definite variance with the American authorities. In speaking of spondylolisthesis, he states that in thirty years of roentgen practice he cannot recollect seeing an absolutely certain case. This is a very surprising statement. The American orthopedists have written numerous articles and show innumerable roentgen illustrations indicating displacement of the fifth lumbar vertebra amounting to grades 1, 2, 3 or 4 (Meyerding). Also, he states emphatically that no chest film should be made with the assistance of an intensifying screen. He speaks of the diminution of translucency occurring because of involuntary contraction of the shoulder muscles, but apparently does not take into account the blurring due to movement of lung tissue as a result of the heart impulse when exposing chest films without screens. There is an entire absence of these confusing shadows when screens are used, as a technic of one-twentieth second shows the anatomic structures entirely quiescent.

The author was the originator of teleroentgenography as early as 1904, by which means the heart measurements are accurately obtained from a six-foot plate. This procedure is now very well known by the medical profession at large. Also, Köhler's disease of the navicular bone of the tarsus is a well known entity. This bone condition was described by the author in 1908. There is so much that could be said to the credit of the author that it seems unfortunate that the English translation has failed to clearly and accurately express his opinions in some portions of this book. It can be stated emphatically, however, that the portion dealing with bones and points is exceptionally good. KOENIG.

TIME OF OVULATION IN WOMEN. A Study on the Fertile Period in the Menstrual Cycle. By Carl G. Hartman, Department of Embryology, Carnegie Institution of Washington, etc. 226 pp. $3.00. The Williams & Wilkins Company, Baltimore, 1936.

There are those who believe that the Ogino-Knaus theory of an absolute safe period is not reliable, or at least only relatively safe. The objective of this book is to discuss specific facts in anatomy and physiology essential to this subject. Chapters deal with germ cells, male and female, ovulation, fertilization, male and female sex cycles. Eight chapters consider the time of ovulation, describing many experiments to determine the facts pertaining to this subject. The only exact information gathered as to the time of ovulation and the menstrual cycle refers to the monkey. By manual palpation, observation of copulation and examination of eggs and embryo, it was positively determined that monkeys ovulate at a specified time, regardless of the length of the cycle. The female monkey has circumscribed periods of fertility and sterility. In the human species this has not been determined definitely, due to the difficulty in obtaining actual facts as to menstrual dates. Knaus affirms that ovulation practically never occurs outside of days 8-21, tallying with figures determined in the monkey. The best evidence points to midinterval ovulation as a rule in the human species. Proofs seem to accumulate toward proof of the denial of ovulation in the latter quarter of the cycle which would seem to support the Ogino-Knaus law.

TEXT-BOOK OF PATHOLOGY. By Delafield and Prudden. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York, etc. Sixteenth Edition. With twenty-two full-page plates and eight hundred and thirty-nine illustrations in the text in black and colors. 1406 pp. $10.00. William Wood & Company, Baltimore, 1936.

One should and usually does find it difficult to be critical of a daily companion and friend. This is particularly true when that relationship of the reviewer has existed for over twenty years. This is the sixteenth edition of this textbook, the first having been published in 1885. One could make no statement that would be greater praise than the above facts. This text has a clear terseness in its descriptive phases which should impress one with the thorough knowledge of the authors. The book has been fortunate in that such an able man as Francis Carter Wood was chosen to revise the several recent editions.

The size of this work, in comparison with former editions, is indicative of the wide range of subject matter which it covers. A knowledge of pathology being the basis for comprehensive medical information, this volume presents the facts of all aspects of this necessary foundation for medical education. A detailed description of such a comprehensive work would be impossible. The profusion of illustrations, many in colors, helps to emphasize graphically the descriptions of the text. The chapter on neuropathology has been greatly enlarged and improved in this last edition. The great mass of valuable information, clearly expressed and constantly revised to include recent advances, makes this book an outstanding authority in pathology and assures it a place in the library of every physician, regardless of his specialty. NICKSON.

RECENT ADVANCES IN DERMATOLOGY. By W. Noel Goldsmith, M.A., M.D. (Camb.), M.R.C.P. (Lond.). Physician to St. John's Hospital for Diseases of the Skin, etc. With Foreword by A. M. H. Gray, C.B.E., F.R.C.P. (Lond.), F.R.C.S. (Eng.). With eight colored plates and fifty text figures. 521 pp. $5.00. P. Blakiston's Son & Co., Inc., Philadelphia, 1936.

In contrast to the Year Books which give abstracts of various articles on dermatology, this book covers all the advances made on the subject in the last twenty years. The developments in recent years in the fields of allergy, biochemistry, endocrinology, psychology, etc., as applied by the author to the subject of dermatology, give an entirely different conception of the subject from that taught in the older text-books, in which, for instance, disorders of lipoid metabolism or the relationship of the reticuloendothelial system to skin diseases, if mentioned at all, are but poorly elucidated. The contents are well arranged as to etiology. It is well written and will prove of great value to anyone at all interested in the subject of dermatology. JACOBSEN.

AN INDEX OF DIFFERENTIAL DIAGNOSIS OF MAIN SYMPTOMS. By Various Writers. Edited by Herbert French, C.V.O., C.B.E., M.A., M.D., Oxon., F.R.C.P. Lond., Consulting Physician to Guy's Hospital, etc. Fifth Edition. 1145 pp. 742 illustrations, 196 of which are colored. William Wood and Company, Baltimore, 1936.

This book is unique in the sense that it is a gathering of discussions under the headings of symptoms and signs which are arranged in alphabetical order. It has now been in publication twenty-four years and has undergone its fifth edition this year, making it very modern and well up to date. It covers the whole field of medicine, surgery, gynecology, ophthalmology, dermatology and neurology. Treatment, pathology and prognosis are not included except wherein they have a bearing on differential diagnosis. On reviewing this book one realizes that briefly but comprehensively there is an orderly attempt to give one a large sphere of cross-association when dealing with a symptom or a sign alone.

The reader is given another way of considering a differential diagnosis which in some instances will accelerate his arrival at deductions and conclusions. The large number of illustrations help to fix more firmly in one's mind what the word picture means. Many of the illustrations are quite interesting and unusual in their portrayal of morbid conditions. This treatise is an appropriate volume that one would like to have on his book shelf as a ready source of medical information. Bowers.

The Balanced Diet. By Logan Clendening, M.D., Professor of Clinical Medicine, University of Kansas. Illustrated. 207 pp. $1.50. D. Appleton-Century Co., Inc., New York and London. 1936.

The author states that a balanced diet must furnish enough energy to keep the body going, material for growth and replacement of tissue waste, enough water, enough inorganic mineral salts, vitamins, enough bulk, and must help to maintain neutrality of the body. The purpose of the book is to amplify these specifications. Formerly specific articles of diet were supposed to produce specific body results. For a long time emphasis has been placed on the three basic food principles, protein, carbohydrate and fat. Later it was discovered the equal necessity of other forms of food. Food fads are presented in an interesting manner. One investigator found that 59 per cent of the population believed that eating fish improved the brain. Graham bread was so named because a man of that name thought that life giving qualities were removed in the milling process. Prolonged and violent argument centered around this belief. The fasting fad is duly discussed as well as the "hay diet." The vegetarians assemble numerous argumentative adherents, among them George Bernard Shaw who has based his whole life on cool reason and this tells him to eat nothing but vegetables. In contrast are those who eat nothing but meat, like the Arctic explorer, Stefansson. The author does not specify essential absolute articles of diet.

American Chamber of Horrors. The Truth About Food and Drugs. By Ruth deForest Lamb. Illustrated with photographs. 418 pp. $2.50. Farrar & Rinehart, Inc., New York, 1936.

This title is derived from the collection of injurious and fraudulent productions exhibited in the office of Chief Inspector of Food and Drug Administration. Attention of visitors was so shocked that this became the popular designation. The author pays great tribute to the pioneer efforts of Dr. Wiley during the early part of this century, which resulted in effective legislation to establish pure drugs and foods. The tremendous financial interests of patent medicine and other fraudulent products have throttled passage of the Copeland bill in Congress, which would be the most effective measure yet attempted for the elimination of these outrageous frauds on the public. Chapters appear under such suggestive titles as, "Beauty—At Cost," "Blood Money," "The Death-Dealers," "Medicine Swindles," "How Much Poison is Poisonous." The Marmola and Rengo swindle is described with many interesting details showing how government efforts to suppress them have been thwarted to the present time. The terrible results of Lash-Lure applications is vividly portrayed. Under "It's a Racket" the Crazy Water Crystals fraud is thoroughly exposed. The author believes that the Copeland bill, originally introduced in Congress in 1933, will eventually be enacted, although with modifications from its original contents, while many worthwhile features are still retained. Any one interested in this vital topic can obtain valuable information from this volume.

Tuberculosis. By Gerald B. Webb, M.D., Former President, National Tuberculosis Association. With 17 illustrations. 205 pp. $2.00. Paul B. Hoeber, Inc., New York, 1936.

This is a handy pocket edition in the Clio Medica series, presenting an interesting review of tuberculosis. Its antiquity is attested as a disease of incomplete civilization, first relics of Pott's disease dating to the dawn of civilization, 5000 B.C. Tuberculous spines are recognized among the Egyptian mummies. The most marked rise in English tuberculosis death rates corresponds to beginning of the industrial revolution and assembling of population in cities. There is a review of knowledge of ancients of this disease. It was infrequent among the ancient Hebrews who had no word for designating cough. During the middle ages the King's Evil, or scrofula, was supposed to be relieved by the royal touch. An interesting chapter on pathology shows the development of etiologic knowledge of the disease. One notices an interesting description of Koch's development of technic for recognition of the bacillus. Under diagnosis and treatment are presented the development of our knowledge in these respects and the results as employed at the present time.

The Hair and Scalp. A Clinical Study. By Agnes Savill, M.A., M.D., Consulting Physician to Fitzroy Square Skin Hospital, etc. 54 illustrations, 288 pp. $5.00. William Wood & Co., Baltimore, 1935.

In addition to the usual diseases of the scalp, this monograph contains considerable information of practical importance on mild disorders that as a rule are neglected by the physician. Three chapters in particular deserve mention, namely, chapter III, "Care of the Hair," chapter V, "Common Disorders of the Hair," which deals with such conditions as gray hair, dullness, dry hair, etc., and chapter VI, "Diffuse Hairfall Without Disease of the Scalp." These conditions are discussed in detail and reflect admirably the experiences of a long career of clinical and laboratory investigation in this field.

There is a chapter dealing with warts, swellings, nodules and tumors of the scalp. More space is devoted to the diagnosis and treatment of the simple and common disorders than to rare conditions. Covering, as it does, the whole scope of diseases of the hair and scalp, including anatomy and physiology of the hair, this book contains much information of particular value to the family physician as well as to the dermatologist. Odland.

Medical History of Contraception. By Norman E. Himes, Ph.D., Medical Foreword by Robert Latou Dickinson, M.D., F.A.C.S. 521 pp. $7.00. The Williams & Wilkins Company, Baltimore, 1936.

The author states that contraception is a social practice of much greater historical antiquity than is commonly supposed, having existed in some form throughout the entire range of social evolution covering several thousand years.

It is incorrect to think that the modern birth control movement is a response to the teaching of birth control propagandists. This volume is divided into six parts, dealing respectively with contraceptive technic before the dawn of written history, in antiquity, in eastern cultures, in the west during the middle ages and early modern times, democratization of technic since 1800 in England and the United States and its future effects. Under these headings are presented reviews of contraception as conducted in various parts of Africa, North and South America, among the Egyptians and the historical and legal aspects as given in the Bible and the Talmud. There are references to Greek and Roman writers and the technic as practiced in China, India and Japan. Many of these notations describe many unique and astonishing practices for the restraint of conception. A chapter is given to the history of the condom which appears to have been suggested by a doctor of that name, a physician to the court of Charles II (1660-1685). The modern birth control movement began with the writings of Francis Place, whose activities in the early part of the nineteenth century started the modern movement in England. The activities in the United States of recent years are so well known as to require little comment. The author believes that the desirability of birth control is being more widely recognized and will soon be generally accepted in spite of the opposition from ecclesiastic and other sources. The tremendous interest in this subject is indicated in the attached bibliography which fills sixty pages.

The 1935 Year Book of General Surgery. Edited by Evarts A. Graham, A.B., M.D. Professor of Surgery, Washington University School of Medicine, etc. 838 pp. $3.00. The Year Book Publishers, Chicago, 1936.

Many valuable articles in general surgery were written last year. Most of these have been compiled in the 1935 Year Book. They have been abbreviated and classified. They are so grouped that they form many symposia on many subjects. As an example of this the articles on gastroenterostomy and gastric resection of peptic ulcers are suggested. In many places where the recent literature is scant on an important subject, reference is made to former Year Books, where more material is available. The material is well indexed. The editor's comments are most valuable.

Of special interest is the increasing literature on peripheral vascular disease and thoracic surgery. Disease of the pancreas, the use of barium enema and fluoroscope in intussusception are of interest. The extra hazard of surgery upon fat patients is emphasized. Readers from the Northwest will recognize the names of some of their friends among the authors. The Year Book is the best buy of the year in general surgery. Metheny.

The 1935 Year Book of Obstetrics and Gynecology. Obstetrics edited by Joseph B. De Lee, A.M., M.D. Professor of Obstetrics, University of Chicago Medical School, etc. Gynecology edited by J. P. Greenhill, B.S., M.D.. F.A.C.S. Professor of Gynecology, Loyola University Medical School, etc. 688 pp. $2.50. The Year Book Publishers, Chicago, 1936.

There is no outstanding new development during the past year in either obstetrics or gynecology, except, perhaps, the increasing amount of work being done and the satisfactory results obtained in the field of endocrinology. Each paper or group of papers has its editorial comment, De Lee's being especially interesting, and we are again struck by his ever constant pleas for conservatism in obstetrics. He deplores the modern idea of early induction of labor by rupture of the membranes, other than for pathologic reasons. We agree with him, but nevertheless swing with the demands of the public for painless childbirth.

The gynecologic section is noteworthy in that there is a large section devoted to the ever present argument of total versus subtotal hysterectomy. The articles both pro and con by leading gynecologists are presented in a most convincing manner and, with less experience, we are able to make decisions easier if we follow their advice. Operative technic is fully described. This is a handy volume to have around the office because every phase of obstetrics and gynecology is touched upon and many times a diagnosis or a treatment is picked up that helps both the patient and ourselves. G. S. Carroll.

Ultra Short Wave Therapy. A New and Important Medical Discovery. By William H. Dieffenbach, M.D., Consulting Radiologist to Community Hospital in the City of New York, Inc. 87 pp. B. Westermann Company, New York, 1936.

The author is an enthusiast over short wave therapy, being a disciple of Schliephake whose methods are followed. The latter's glass condenser electrodes are illustrated and preferred by the author. While some authorities claim that wave length is unimportant in short wave therapy, in this book preference is shown to the 6-meter wave length as is advocated by Schliephake. Uses of ultra short wave begin with ringworm of the scalp, progressing through the different organs of the body including empyema, acute and pyogenic gallbladder, gastric and duodenal ulcer, and colitis, beside other varieties of infections. In reading this book one should exercise a cautious mind.

An Introduction to Surgery. By Rutherford Morison, M.D., F.R.C.S. Edin., F.R.C.S. Eng., M.A., D.C.L., LL.D., Emeritus Professor of Surgery, Durham University and Charles F M. Saint, C.B.E., M.D., F.R.C.S., F.R.A.C.S., Professor of Surgery, Cape Town University, South Africa. Third edition. 367 pp. $5.00. William Wood and Company, Baltimore, 1935.

The purpose of this book being to aid the student in thinking out problems for himself, this is attempted through consideration of general principles and their applications. This is demonstrated in discussions of principles of surgery, shock, hemorrhage, infection and inflammation. Chapters deal with specific infectious diseases, ulcers, gangrene, syphilis, malignant disease and the hollow muscular systems. There is an abundance of illustrations which amplify the text. The book presents an instructive synopsis of surgical problems.

Pediatric Nursing. By John Zahorsky, A.B., M.D., F.A.C.P., Professor of Pediatrics and Director of the Department of Pediatrics, St. Louis University School of Medicine. Assisted by Beryl E. Hamilton, R.N., Graduate of St. Luke's Hospital, St. Louis. With 144 illustrations in the Text and 7 color plates. 568 pp. $3.00. The C. V. Mosby Company, St. Louis, 1936.

Prevention of disease is especially emphasized, to attain which proper nutrition and normal growth of the child are primary objects. Part I of this book is devoted to the science of pediatrics which the authors believe is most useful to the trained nurse. There are chapters on nutrition, different forms of feeding, symptoms, diagnostic technic, diseases of various organs and infectious diseases. Essential details are offered under these headings, with suggestive illustrations that emphasize important features. Part II describes the technical work, methods being based chiefly on the department of pediatrics in a general hospital. There are descriptions of nursing materials, the milk laboratory, preparations of formulae. Methods of procedure give detailed suggestions for handling the baby under a great variety of conditions, with many suggestive illustrations. Nursing technic in the home offers suggestions for the care of the sick infant. Many other features of pediatric nursing are presented as executed both in the hospital and the home.

A B C OF THE ENDOCRINES. By Jennie Gregory, M.S. Foreword by Carl G. Hartman, Department of Embryology, Carnegie Institution of Washington. 126 pp. $3.00. The Williams & Wilkins Company, Baltimore, 1935.

It is a well known fact that information is commonly acquired more readily through vision than by reading, and that diagrams are often most effective as a means of instruction. In the minds of many the histology and function of endocrines are very hazy and confused. The author of this book presents an interesting course of demonstrations clarifying endocrine mysteries to a large extent. This is accomplished by a series of diagrams. For instance, pituitary control of the body is demonstrated by an outlined figure with lines from the pituitary leading to lateral figures representing the thyroid, liver, gonads, suprarenals, kidneys and islands of Langerhans, with captions showing pituitary effects on each. Another figure with lines leading from anterior and posterior pituitary portrays the normal effects of each. In equally vivid manner and form the anterior pituitary normal female relationship to the gonads and their changes during pregnancy. Diseases associated with anterior and posterior pituitary during hyperactivity and hypoactivity are graphically outlined. Similarly are displayed the actions of ovarian hormones relating to menstruation and pregnancy. Similar demonstrations are applied to thyroid, parathyroids, adrenals and pancreas. With little effort one obtains a comprehensive impression of endocrine functions by a short course of investigation.

SURGICAL CLINICS OF NORTH AMERICA. Issued serially, one number every other month. Volume 16, Number 1. Chicago Number, February, 1936. 356 pages with 78 illustrations. Per Clinic Year, February, 1936, to December, 1936. Paper, $12.00; Cloth, $16.00 net. W. B. Saunders Company, Philadelphia and London, 1936.

This volume presents contributions by twenty-nine surgeons. A symposium on cancer contains seven papers on symptomatology, diagnosis, treatment, complications of surgical removal of carcinomas of the uterine cervix, control of pain in late and inoperable cases, treatment of preoperative cases, carcinoma of the cervix complicated by pregnancy. Lewin, discussing manipulative surgery, describes methods of treating contractures with manipulation of special regions and details the many tests particularly applicable to sacroiliac, lumbar and low back strains. Jennings discusses sprains of various joints, with descriptions of treatment for their relief. DeTakāts considers gangrene from various causes and describes method of treatment. Many other surgical conditions are discussed.

AIDS TO MEDICINE. By James L. Livingstone, Physician to King's College Hospital, etc. Fifth Edition. 422 pp. $1.50. William Wood and Company, Baltimore, 1935.

This pocket size volume is a handy compilation of the main principles involved in medical practice. In small space are enumerated the diseases encountered by the average practitioner together with the essential facts on etiology, pathology, diagnosis and treatment.

PROGNOSIS IN RENAL CARCINOMA AND CLINICAL AND PATHOLOGIC DATA AFFECTING IT. William F. Braasch and Miles Griffin, Rochester, Minn. (Journal A.M.A., April 18, 1936), believes that as an index to prognosis and in the interest of simplified terminology it would seem best to regard all malignant tumors of the renal cortex as carcinomas and to grade them according to the degree of cellular differentiation. From a clinical point of view, carcinoma of the renal cortex may be divided further into two groups which have distinct clinical characteristics; namely, adenocarcinoma (hypernephroma) and alveolar carcinoma. Although there may be various factors, such as metastasis, which can modify postoperative results, the prognosis usually will conform to the histologic evidence of malignancy. Metastasis occurs most frequently with renal tumors of the higher grades of malignancy and may be present without causing clinical evidence. Lymphatic extension is a frequent occurrence. Metastasis is found most often in the lungs, rather infrequently in the osseous system. Although the progress of the disease in the presence of pulmonary metastasis may be delayed by nephrectomy and irradiation of the lungs, postoperative results indicate that the chance for recovery is so slight that operation is not justified. It is possible that the roentgenographic evidence of pulmonary metastasis in some of the few cases in which patients were reported as having recovered was incorrectly interpreted. Calcification of tissues in cases of renal adenocarcinoma is a frequent occurrence and indicates a favorable prognosis. Urographic evidence of widespread involvement of all calices and of the pelvis indicates a high grade of malignancy and a guarded prognosis. The excretory urogram will give accurate information with regard to the presence of renal neoplasm in a high percentage of cases. Its routine use should be more frequent in the identification of abdominal tumors.

ALOE VERA IN TREATMENT OF ROENTGEN ULCERS AND TELANGIECTASIS. Following a personal communication from Dr. Creston Collins in 1934, Carroll S. Wright, Philadelphia (Journal A.M.A., April 18, 1936), began the use of the fresh aloe vera leaf in the treatment of two cases of x-ray telangiectasia resulting from ill advised attempts at x-ray depilation by local advertising concerns, and in one case of radium telangiectasia of ten years' duration. Because of the difficulty of applying the whole leaf directly to the areas in question, he scraped out the intestinal contents of the leaf and mixed it with an equal quantity of aquaphor and had the patient massage this into the skin every night. Since October, 1934, he has treated seven cases of x-ray telangiectasis and the one case of radium telangiectasia by this method. No improvement was obtained as regards the degree of telangiectasia but the texture of the skin was improved in all cases. One could not expect that the telangiectasia resulting from excessive x-ray application would be improved by any method that did not include destruction of the enlarged vessels. The author discusses the remarkable improvement that he obtained in two cases of x-ray ulceration with the hope of stimulating interest in what promises to be a revolutionary method of treatment for early x-ray damage to the skin and ulceration of the skin resulting from x-rays. In view of the unfortunate but nevertheless occasional burns that may result from over-exposure to roentgen rays, any therapeutic agent that offers a hope of quick healing and relief of discomfort in such sequelae is worthy of further study. From the cases reported it would seem that x-ray ulceration, even of several years' duration, will respond to the use of aloe vera. The permanence of results can be determined only by watching cases thus treated over a period of time. Little can be expected in the treatment of telangiectasia as a result of irradiation beyond a smoothing and softening of the affected skin.

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RECENT STUDIES IN NUTRITIONAL REQUIREMENTS OF MAN*

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Leslie Harris in the *British Medical Journal* recently said that "correct nutrition cannot be left to instinct, to the use of 'natural unspoilt foodstuffs,' to a varied diet or to a process of free selection. Adequate nutrition is not possible for certain sections of the community under existing economic conditions and much scientific knowledge of nutrition already won fails to gain sufficiently wide recognition of practical application."

Perhaps one of the greatest problems facing us today is how to make immediate practical application of the findings of scientists to the meals of each person every day. Some thousands of papers are being published each year from the many nutritional laboratories in this and other countries and much of this information has practical value for the nutritional well-being of our people.

It is the intention in this paper to present some of the more recent findings in nutritional investigations and to indicate some of the possible applications of such studies. Any information that will help more authoritatively to determine the nutritional requirements of man is of value both from the human welfare standpoint and from the economic viewpoint of the question. Furthermore, it is of even greater value to obtain quantitative determinations of such requirements.

PROTEIN

It is now well established that a supply of good quality protein is essential in the diet. And in a discussion of protein the emphasis is not on the quantity but on the *quality*. Present day eating habits are such as are likely to include a sufficient quantity of protein, particularly as it is known that the body is able to adjust itself over a rather wide range of intake. But that the quality of protein be of the best is quite essential. All proteins are not alike in the type of building material (amino acids) which they supply and therefore it is necessary to choose those which are known to contain the necessary amino acids. Milk, cheese, eggs and meat are emphasized as good quality proteins. Among the most recent advances in protein knowledge is the work of Rose at Illinois in finding what is probably a hitherto unknown amino acid present in the casein of milk protein.

It is of considerable interest also that some of the hormones, such as insulin, glutathione, thyroxin and adrenalin, are derivatives of amino acids so that we can extend our conception of amino acids as tissue building material to include their newly defined work of contributing to the supply of body hormones.

FAT

Knowledge of the fat requirement yet has much to be added. Very interesting studies have been made by Evans and Burr, which would indicate that there is an essential fatty acid for normal nutrition of the rat. Whether this has any importance in human nutrition we are unable to say.

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*Read before the Fourth Annual Institute of Oregon State Nutrition Council, Portland, Ore., Feb. 23, 1935.

Seldom if ever is there found a human diet entirely devoid of fat, though it may be inadequate in the fat soluble vitamins A and D which are best supplied in the diet by inclusion of certain fats.

Fat has been shown by Evans and Lepkovsky to have a sparing action on the utilization of vitamin B. The mode of action is not yet clear and further confirmation is necessary from other laboratories. Cowgill in his studies finds some evidence which may be confirmation but which it is also possible to interpret in another way.

Stefannsson, when living on high protein (meat) diets, found that he became unwell if he omitted fat and ate only lean meat; possibly fat aids in the metabolism of protein. In actual practice it is advisable to include some fat in the diet, as a carrier of the fat soluble vitamins, as a concentrated form of energy, and to meet other as yet undefined body needs.

In the study of *energy requirement* there have been additions to our knowledge but no strikingly new developments. Benedict, in recent studies of increased metabolism due to mental effort, has shown that, while metabolism of brain and nerve tissue is increased somewhat, this is relatively small compared with the whole body metabolism and one-half peanut is sufficient to supply the necessary calories for an hour of sustained mental work.

To meet the energy requirement of the human system has frequently been stated as the fundamental factor in diet planning and especially so in times of economic stress or shortage of food. Sherman has recently suggested that some of the mineral needs should have prior claim because poorly formed bones and teeth which are the direct result of mineral lack can never be compensated for even by excellent diets supplied later in life, but shortage of calories, which may mean stunting of growth, can later be compensated for if it has not progressed over too many years. And in any case a smaller bodily stature with sound teeth and bones is not such a serious nutritional condition as a body of normal stature but lacking in stability in bones and teeth.

Careful nutrition must take care of present conditions as well as setting high standards of nutrition as the ultimate goal. And present conditions demand a very careful analysis of what are the most fundamental requirements for nourishment of the human system. Where the food supply is extremely limited, considerable thought must be taken as to which are the most important food factors which must be supplied in the emergency. Milk in some form and some fruits or vegetables should, therefore, be included in the lowest cost diets, even if obtained at the expense of cheaper caloric-giving foodstuffs.

MINERAL REQUIREMENTS

The minerals have been receiving considerable attention, and rightly so, during the past few years. The minerals required are many in number, and some which have been rather taken for granted because of the extremely small amounts present in any food, have recently acquired a new prominence. Copper is one of these. Largely through the work of Hart, Elvehjem and coworkers at Wisconsin, the importance of this element has been realized.

In studies on nutritional anemia of rats made anemic by an exclusive milk diet, it was found that pure iron salts of various kinds were ineffective in raising the blood hemoglobin of these rats. The addition of traces of copper gave favorable results. Apparently the copper is necessary to aid the body in utilizing the iron of foods. The analysis of many common food materials has shown the presence of copper in most of them. In order of copper potency are the following: nuts, dried legumes, cereals, dried fruits, poultry, fish, animal tissues, green peas, and beans, tubers and roots, leafy vegetables and fresh fruits. The first four foods rate high because of their low water content. Foods which were found to be exceptionally high in copper were calf liver, oysters, chocolate and cocoa. This discovery of the significance of copper in nutrition gives no cause for starting a new fad, for the evidence is that the foods in the average diet are adequate in copper. However, such additions to our knowledge, as the necessity of copper to make the food iron utilizable by the body, may be very significant in medicine in correcting certain disturbances or dysfunctions in iron metabolism. The ratio of copper to iron we do not know, but there is a definite relationship or working together of these two minerals and other examples of interrelationships will be noted later in this discussion.

These iron-copper studies have practical nutritional value in further emphasizing the need to supplement the infant's diet of milk with some foods such as fruits, vegetables and egg yolk, which will add iron along with copper. Another observation by Elvehjem and his colleagues was that the availability of iron in foods is an important factor in determining the rate and extent of hemoglobin regeneration in anemic rats. They found that the amount of iron shown to be present in a food by ordinary analysis was sometimes greater than the amount which the animal could utilize. These workers used a method of titration with dipyridyl reagent and determined the available iron in foods. They found it to agree with their rat feeding results and that it was in some cases lower than the total iron. They found various inorganic iron salts to be 100 per cent available, but the iron of wheat, oats and yeast was only about 50 per cent available. It is probable that the availability of copper is significant also.

It would seem desirable to raise our present dietary standards for iron. In other words, applied nutrition should try to increase the amount of iron-rich foods in the diet, since the iron of food which is available to the body appears in some cases much less than the usual iron analyses show, or less than the figures which we use in calculating the iron value of the diet.

Manganese is a mineral element comparatively little studied up to the present, but a report last November from Iowa University stresses the physiologic need for this mineral. In a number of balance studies on children, Daniels found increased retention with higher levels fed. It is believed that children's diets consisting of milk and refined cereals may be low in this element.

Milk and protein foods contain very little manganese, while some vegetables and whole grain cereals are relatively high. Therefore, the use of some whole grain cereals and of vegetables should be emphasized early in the diet of the child. Between 0.20 and 0.30 milligrams manganese per kilogram body weight is the amount believed by these workers necessary in the diet of growing children.

VITAMINS

Vitamins undoubtedly are the most fertile field of nutritional study today, not because they are more important than the other factors, but because their discovery was more recent. Unknown as such twenty-five years ago, vitamins are now six in number with the possibility of more being discovered. It is to be questioned whether the present name of vitamins is a desirable one or if it will long remain. It is in no way descriptive of their chemical nature or physiologic function. Brown has suggested the term "exogeneous hormones" since they seem to act similarly to hormones but are produced outside the human body.

Vitamins are like a group of orphan children left on the doorstep of nutrition by the scientific investigators and named in typical orphan style: A, B, C, D, E and G. Now that they are grown up, have parted company and taken on their own identity, they seem to need names more expressive of their own individuality. So it is possible to speak of carotene, ascorbic acid or cevitamic acid, calciferol and flavine with some indication of possible chemical nature. However, these names are not entirely acceptable yet as their exact applicability is not certain.

Vitamin A. Because of usage and for purposes of clarity, vitamins are here referred to by the old terminology. Vitamin A is that vitamin which stimulates growth, maintains the integrity of the epithelial tissues, and helps to increase the body resistance against infections of the respiratory tract.

About three years ago Karrer in Zurich succeeded in isolating this vitamin in a high degree of purity and his work was confirmed by that of Drummond in England. Karrer may not have obtained the absolutely pure vitamin, but it is probable that the studies he made enabled him to assign the correct chemical formula to it. It is now known to be a higher alcohol of the unsaturated type. Vitamin A, as such, is a product of animal metabolism. The animal obtains it from carotene of plants which it converts probably by some hydrolytic enzyme action to Vitamin A. Carotene, a highly unsaturated hydrocarbon, is responsible in many cases for the orange or yellow color of fruits and vegetables, though in green plants its presence is masked by the green of chlorophyll.

Carotene is readily obtainable in crystalline form, but in normal nutrition there seems to be no reason why we should attempt to use purified carotene, especially as so little is yet known concerning the extent of the body's ability to absorb it and convert it to vitamin A. However, it may be of value in diet therapy where a diet low or free from fat is desired, when carotene might then be utilized.

In normal nutrition dairy products (made from whole product), leafy vegetables and carrots are such excellent sources of this vitamin that it should be possible to include vitamin A-rich food in every diet.

The human infant is born with little or no reserve store of vitamin A but has the ability to lay up large stores of it in the liver. It is of practical importance that those who have the opportunity of planning children's diets should make them as rich as possible in vitamin A, thus laying up a reserve store as protection against the day when such a liberal diet may not be obtainable.

How much of this vitamin is required to meet our nutritional needs? Batchelder, in her studies of the life cycle of the rat and its need for vitamin A, found that four times the amount necessary to give growth and protection from eye diseases gave greatly increased health, vigor and reproduction. Confirmatory evidence for this has been obtained by Mellanby and Green in England. They report that greatly increased nutritional well-being was observed when four times the minimum requirement for protection from disease was fed to the experimental rats.

Of course, rats are not human beings, and there is no way of directly transferring animal needs into human requirements. However, it is desirable to have all nutritional requirements on a quantitative basis whenever possible. Rose has proposed certain standards for vitamin A requirement based on studies of the amount of vitamin A in diets of children in institutions and other groups suitable for observation in various parts of the country, and on the physical condition and growth of these children.

Rose proposes 200 units of vitamin A per 100 calories for children and 100 units per 100 calories of diet for adults. These units are very confusing terms. There are many different types of units in use and they do not tell us the actual quantity of vitamin A present, but merely form a basis for expressing the comparative vitamin A value of various foods. For this reason, knowing how many units of A are in milk, it is possible to express for this vitamin and later for the other vitamins the requirement in terms of milk or other foodstuffs.

The vitamin A requirement proposed by Rose can be met by: 1 pint of milk plus 1 ounce of butter for a man; 1 quart of milk plus 10 gram (1/3 ounce) butter for a growing child. For comparative purposes, one quart of milk is equal in vitamin A value to one pint tomato juice, three quarts orange juice, or two ounces butter, carrots or spinach.

Vitamin B. Vitamin B, which is known abroad as vitamin B_1, is the most recent of the vitamins to be isolated as a pure substance and to have its chemical formula determined. This was announced last month by Williams at Columbia University. For some twenty years Williams has been working to purify this vitamin which is necessary for growth, for promotion of appetite, and for protection against a nerve disease, beri beri. He obtained his pure vitamin from rice polishings, one ton yielding only 1/6 ounce of vitamin B. He believes the formula of this vitamin to be a combination of pyrimidine and thiazole. With a definite formula the chemist can now more clearly study the physiologic function of vitamin B and attempt to determine just how it acts in the human body.

Beri beri is exceedingly rare in the United States and studies of American dietaries show that in general sufficient vitamin B is supplied to protect against this disease. An outstanding work on this subject is that of Cowgill of Yale in a monograph recently published on "The Vitamin B Requirement of Man." This is the first publication of carefully planned extensive study of diets of many countries correlated with the incidence of beri beri, and interpreted quantitatively in units of vitamin B, such units being determined from numerous, quantitative animal studies by the author on the vitamin B value of foods. In this way Cowgill has found that body weight, calories (or total metabolism), and maximum normal weight of the species are the variables determining the vitamin B requirement. He derives a formula for this: $\frac{\text{Vitamin i}}{\text{Calories i}} = \text{Ks Wi}$, where vitamin i is the daily requirement of the individual of body weight Wi, whose calorie intake is Calories i and Ks is a constant for the species, the formula being applicable to various animal species as well as to man.

This formula was used on the diets of nineteen groups of people and it was found that, when the calculated requirement was met, the group was free from beri beri and in those groups where the supply of vitamin B fell below the calculated requirement beri beri had occurred.

However, this formula gives the requirement only for protection against beri beri and may not be the same as the amount which is necessary for good health. In another study Dann and Cowgill found that young rats needed three to five times more vitamin B than the amount required to maintain the animal at a given body weight. This indicates, as we have already seen with vitamin A, that greatly improved health is obtained by increasing the vitamin supply above the amount required for protection from disease.

Also it must be remembered that vitamin B is water soluble and so may be lost in preparation and cooking of vegetables. A liberal supply of this vitamin in the diet is required. Rose has proposed as a standard for vitamin B, 30 units per 100 calories of food. This could be met by two quarts of milk. Cowgill, in his studies, found that one pint of milk gives a man 37 per cent of his daily requirement so that one and one-half quarts would meet the full requirement and would be in good agreement with Rose. One quart of milk is equivalent in vitamin B value to one quart of orange juice, one pound of spinach or two pounds cabbage.

Vitamin G. Vitamin G, which is known in some countries as vitamin B_2, though not quite so well understood in all its nutritional significance, is known to be essential for growth. In its absence, digestive disturbances, nervous depression, general weakness and unhealthy condition of skin are apt to develop; life is shortened and old age appears to develop prematurely. There is considerable evidence that vitamin G is associated with prevention of pellagra. In recent studies, Booher at Columbia University has reported the preparation from milk powder of a very highly concentrated form of the vitamin which is possibly pure vitamin G and which is probably closely associated or identical with lacto-flavin, the pigment of milk.

With regard to the requirement of this vitamin we have less information than for the other vitamins. Rose states that one quart of milk for the child and one pint of milk for the adult plus some fruits and vegetables have been shown to protect from pellagra. One quart of milk is equivalent in vitamin G value to one pound spinach, two pounds lettuce, one and one-half pounds lean beef or six eggs.

Sherman and Ellis, in carefully graded feedings of vitamin G to rats, found that by feeding four times the amount which protected from disease and caused growth, they observed greatly increased nutritional well being of the animals.

Vitamin C. This is frequently called the anti-scorbutic vitamin, is now know as ascorbic acid or cevitamic acid and is readily obtainable in pure crystalline form at a reasonable price. This is making it possible to study more closely the functions of this vitamin, which appear to be associated with oxidation-reduction processes in the body cells, with the development of healthy tissues and sound teeth, and the prevention of scurvy. Probably few diets are entirely lacking in vitamin C, for scurvy is rare in this country, but undoubtedly many people suffer from an insufficient supply of this vitamin. The body cannot store up this vitamin, so that shortage of vitamin C in the diet soon shows up in what Plimmer of London describes as a sallow, muddy complexion, loss of energy and fleeting pains in the joints and limbs, especially in the legs, and frequently mistaken for rheumatism. The President of the American Academy of Pediatrics has called attention to the recently increasing number of cases of scurvy in infants.

Every available means of getting vitamin C into the diet of the growing child and of man is important. The exact requirement is not known but one ounce of orange juice daily will protect from scurvy. Other fruits and fruit juices, tomatoes and green leafy vegetables are good sources of this vitamin and should be included since the amount required for good physical well being is probably well above that which just protects from scurvy.

Vitamin D. This has, like B, C and G, been prepared in pure chemical form and some pure form of vitamin D is frequently used in medical and pediatric practice. For a supply of this vitamin in everyday menu planning we must rely on sunlight and a few vitamin D-containing foods, supplemented with cod liver oil or other fish liver oil, or with some form of irradiated milk. It is impossible to make an estimate of the human requirement of vitamin D since such requirement must vary greatly with climate, season of year and mode of life.

Foods also vary in their content of this vitamin, milk, eggs and butter being dependent on the feed of the animal for their vitamin D content. Since foods are variable and because this vitamin is so important in the development of sound bones and teeth, it has seemed advisable to increase the vitamin D value of milk in its various forms, by irradiation either of the milk direct, or by feeding the cow irradiated yeast. Evidence so far available seems to indicate that such milk is practically, if not entirely, capable of healing rickets or preventing its occurrence in infants. Very large overdosages of vitamin D have been shown to be harmful but with the protection now in force with regard to the degree of irradiation of foods there seems little danger of overdose from this source. Vitamin D alone must not be looked on as a cure for rickets or a guarantee of good teeth. It cannot compensate for lack of calcium and phosphorous in the diet, but it does promote better utilization of these minerals by the body.

This is another example of interrelationship between essential nutrients, and several have previously been mentioned: iron and copper working together; fat having a sparing action on vitamin B; various proteins supplementing each other; vitamin D and calcium and phosphorous all being necessary for sound tooth and bone formation; and other instances might be given. All of this goes to show that no one food can meet our body needs, nor is any one group of food constituents more important than another. Good quality protein, fat, energy value, minerals and vitamins are all necessary. For example, planning a diet rich in vitamin A cannot compensate for lack of iron or a high intake of calcium cannot make up for lack of vitamin B.

It is quite striking to observe that from various laboratories in this country and England have come reports on the greatly improved condition of experimental animals when the level of vitamin intake was increased above that required for ordinary growth and protection from disease. In each case four times the ordinary amount fed was the one which gave measurable improvement in nutrition. Whether this figure four is significant for all vitamins yet remains to be seen. These examples quoted are the basis of the newer concept of nutritional needs: that average nutrition may be raised to better-than-average; or that which is considered an adequate diet may be readily improved with a resultant greatly improved, more buoyant good health.

This has been clearly demonstrated over a number of years in Sherman's laboratory. Two series of rats have been used, coming from the same original stock so that there is no variation due to hereditary influences. These two series have been kept side by side in the laboratory under the same conditions of housing. The only difference between the two groups is in their diet. These rats have been observed at all stages of life, through the reproductive cycle, generation after generation, until now they are in the thirty-fifth generation. This would be equivalent to studying humans for a period of at least 700 years.

The first group receive a diet of 1/6 dried whole milk powder and 5/6 ground whole wheat; this has been estimated as being roughly equivalent to one pint of milk a day for humans. The rats on this diet are thriving and healthy in the thirty-fifth generation. But what of the second group? Their diet consists of 1/3 dried whole milk powder (estimated as equivalent to one quart of milk in human diet) and 2/3 ground whole wheat. By statistical treatment of the data it has been shown that the chances are 1 in 10,000 that any differences between the two groups are due to anything but diet.

The first group are thriving and healthy but the second group are *more* thriving and *more* healthy. This is shown by the following: The second group of rats are larger and heavier, the infant mortality is lowered, more young are born, the young grow more rapidly and mature earlier and at the same time the reproduction period is extended. Signs of senescence are deferred, and the average length of life has been increased 10 per cent. This is not in any way forcing the life period to something abnormal but is equivalent to increasing the human life expectation from seventy to seventy-seven years, a possible and reasonable achievement. That which was considered good can be made better by diet. A careful study of the possible food factors responsible for the improved all-around health of the second group of animals shows that increased calcium and vitamins A and G have been responsible; possibly other food constituents may be found to be factors in this improvement but have not yet been studied. It is quite possible that this second diet could be still improved with consequent improvement in health and longevity.

There may be some who question the completeness of the application of findings from animal experimentation to humans. One example from the numerous human studies which have confirmed animal findings is that of Mann in England. He studied the influence of the addition of various foods to the diet of boys who were considered to be living on a diet adequate for the needs of growing children. The investigation was in an institution where the boys could be closely supervised and the food consumption carefully regulated. The boys were divided into seven groups. One group remained on the regular institution diet which satisfied the boys' appetites and was believed adequate; the other groups received in addition 1 pint of cow's milk, or 3 ounces sugar, or 1¾ ounce margarine, or ¾ ounce watercress, or ¾ ounce casein, or 1¼ ounce butter. From height-weight studies it was observed that the boys receiving additional milk made an annual average gain of 6.98 pounds per boy as compared with a gain of only 3.85 pounds per boy on the regular diet and an annual average increase of 2.63 inches as compared with 1.84 inches.

These gains in height and weight were accompanied by noticeable improvement in general health and spirit. This betterment in nutrition was found by observation of the other group supplements to be due not to increase in calories or protein, but to more specific qualities of milk as a food. Very probably the improvement was due to the same factors, calcium and vitamins A and G, as observed in Sherman's rat experiments.

Throughout this paper it will have been observed that the emphasis has frequently been on what McCollum has termed "the protective foods," milk, fruit and vegetables (especially the green leafy vegetables). These foods have been termed "protective" because they are such good sources of calcium, and vitamins A, C, G, which are the factors which have been frequently observed to be lacking in our dietaries.

Just how much of the protective foods are necessary in the diet for better-than-average health would be the final point in a discussion of human nutrition requirements. But this is something we cannot yet answer until more comprehensive studies have been made. However, Sherman has made two suggestions which he believes will take account of all known nutritional needs: one-half the needed calories of the diet should be in the form of protective foods and at least half the breadstuffs and cereals used should be in the whole grain or "dark" form.

The conquest of scurvy, beri beri, pellagra, nutritional anemia and rickets by correct diet is a worthy contribution which the nutrition investigators have made but an even greater achievement would be, and can be, improved health with a greater capacity for buoyant living, through the better use of food.

SUMMARY

1. Good nutrition avoids fads or rushing blindly after new discoveries. Instead it is based on the acceptance of a fairly simple, common sense dietary, planned in accordance with the findings of nutrition investigators and making use of the ordinary natural foods available.

2. There is good evidence that no one group of food essentials is more necessary than another, and a lack of one food factor cannot be compensated for by a good supply of another factor.

3. There are close interrelationships and working together of food constituents as instanced by copper and iron, or vitamin D, calcium and phosphorous. This emphasizes the need for a varied diet which may best be obtained by inclusion of liberal amounts of the protective food, i.e., milk, fruits, leafy vegetables and eggs.

4. Quantitative requirements are being more definitely worked out and give a sounder basis for diet planning. But we must remember that "it is not what is in the menu but what is in the family" that is important and "nutrition benefit comes from what we eat rather than from lists of what we should eat."

5. The newer conception of nutrition is that what is apparently an adequate diet may be improved to give a better-than-average, a more buoyant health. This knowledge places on the nutritionist and the dietition a greater responsibility for human welfare.

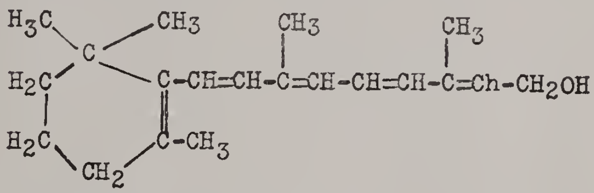
VITAMINIZED FOODS AND COMMERCIAL VITAMIN CONCENTRATES *

IRA A. MANVILLE, PH.D., M.D.
PORTLAND, ORE.

This report will follow the accompanying outline: (1) the chemical formula for the vitamin whenever it is known, (2) the commercial availability of the chemically pure vitamin, (3) the trade names for the commercially pure preparations available, (4) the price of the chemically pure product, (5) comparisons in biologic value of the naturally occurring vitamin and its value when in an isolated form, or in a concentrated form, (6) commercial concentrates of naturally occurring or synthesized vitamins.

VITAMIN A

The chemical constitution of vitamin A, as determined by Karrer, is as follows:



It will be seen that it is a primary alcohol and contains four double bonds in the side chain and one in the ring. This marked degree of unsaturation probably accounts for its relative instability. Vitamin A apparently occurs only as the result of the action of the animal organism on provitamin A. As extracted from animal tissues, it occurs as a nearly colorless oil.

PROVITAMIN A

Provitamin A is the naturally-occurring plant pigment, carotene. Carotene occurs in nature, usually, if not always, as a mixture of two or more isomeric forms, known as alpha, beta, gamma and possibly still another one. The chemical composition of these isomers differs slightly, but all have at least one beta-ionone ring, a grouping which seems necessary for vitamin activity. It will be seen that beta-carotene is symmetrical and contains two beta-ionone rings. Two molecules of vitamin A could be formed from it by breaking it down at the middle double bond with the formation of a primary alcohol at the terminal carbon atom. This might arise from the taking on of two molecules of

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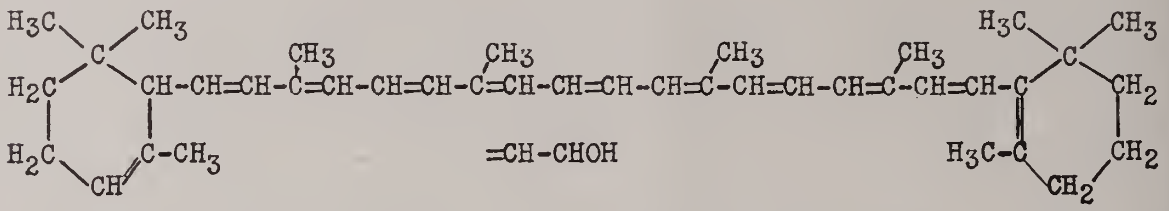
* This paper was read as a report of the following committee before the Oregon State Nutrition Council, February 22, 1936: W. R. Todd, Ph.D., Nutrition Laboratory, University of Oregon Medical School; Jessie Laird Brodie, M.D., City School Physician; Professor Jessimine C. Williams, Department of Home Economics, Oregon State College; Dorothy Keane, Dietitian, Doernbecher Hospital, University of Oregon Medical School; Ira A. Manville, M.D., Department of Physiology, University of Oregon Medical School, Chairman.

water. Alpha and gamma carotenes are not symmetrical and contain only one beta-ionone ring. They consequently would theoretically form only one molecule on being broken down.



Vitamin A in a chemically pure form is not available commercially. Provitamin A, that is, beta-carotene, may be obtained in small quantities, but it costs $2.00 for 10 mg. This would be equivalent to $90,800 a pound.

The Second Conference of the Permanent Commission on Biologic Standardization of the League of Nations Health Organization has established the following vitamin units:

Vitamin A. The activity of 0.6 of a gamma (1 gamma = 0.001 of a milligram) of pure beta-carotene. One gram of a stable vegetable oil (such for example as Wesson oil) containing 300 gamma of beta-carotene would possess 500 International units.

Vitamin B. The vitamin activity of the adsorption product of 10 mg. of Fuller's earth acting on rice polishings.

Vitamin C. The activity of 0.05 mg. of l-ascorbic acid.

Vitamin D. The activity of 0.025 gamma of crystalline vitamin D.

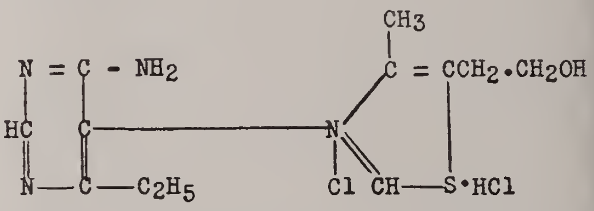
Preparations of high vitamin A potency are those composed of the liver oils extracted from certain fish. Halibut-liver oil, for example, has a vitamin A value of not less than 50,000 units per gram, at least eighty times that of cod-liver oil. An oil made by blending the liver oils of high potency, such for example as Percomorph oil, contains 60,000 units of vitamin A per gram. So far as your committee knows, there is no other available source of vitamin A that exceeds these in potency.

Provitamin A, or primary vitamin A as it is sometimes called, may be obtained on the market under the name of caritol. It is a solution in oil of a 0.3 per cent concentration. Five drops of this is equivalent to 1,000 units. On the basis of a gram of the material, the unitage would lie between 3,000 and 5,000 units.

VITAMIN B

The vitamin originally known as vitamin B has been divided into several fractions. The separate identity of B_1(B), of B_2(G), and of B_4 has been definitely established, while considerable evidence has accumulated indicating the presence of other fractions also.

Vitamin B, the empirical formula for which as given by Williams, is $C_{12}H_{16}N_4SO \cdot 2HCl$. Other investigators include an additional molecule of water, giving $C_{12}H_{18}O_2N_4S \cdot 2HCl$. These formulae differ from the others in that they contain both nitrogen and sulphur. Williams and associates have suggested the following structure for crystalline vitamin B_1.



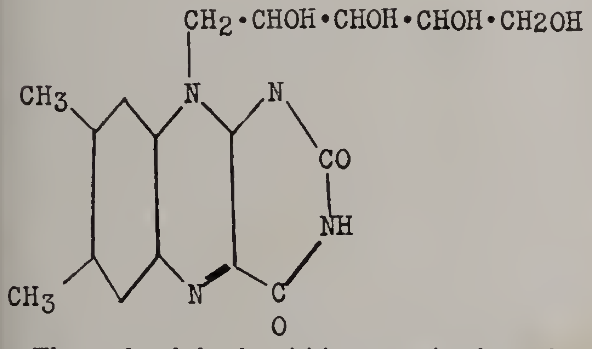
Each mg. of this material represents approximately 400 Chase and Sherman units (12 million units per ounce). The average daily adult requirement is about 1200 Chase and Sherman units. The dose for any case will obviously depend upon the extent of the accumulated deficiency. The average dose appears to be 3 mg. Apparently the body has a very large capacity for storage of vitamin B_1, and it is, therefore, suggested that at the beginning of treatment large doses be administered until a reserve has been built up, after which a smaller maintenance dose may be started. It has been shown that very large doses (20 mg. or more) are tolerated without injury.

This vitamin is not available for ordinary usage. The price quoted by Merck for the crystalline vitamin is $300 a gram, or $136,200 a pound. When it is recalled that it requires one ton of rice polishings to yield 5 grams of crystals, the above price does not seem so high.

Tiki-tiki is a vitamin B-containing preparation made from rice polishings and costs $6.20 a half gallon. Ryzamin-B is a concentrate from rice polishings containing not less than fifty International Units per gram. Fifteen grams retail at $1.15. Oryzanin, a Japanese product, is a solution of crystalline vitamin B put up in ampules containing 0.05 mg. of Oryzanin hydrochloride, or 0.5 mg. of the same, dissolved in 1 cc. of physiologic salt solution. The former would contain 50 International units and the latter 500. So far as is known this material can be obtained only from Japan: Prices are not known.

VITAMIN G

One of the outstanding developments in vitamin chemistry during the last year or so was the identification of vitamin G, or a major component of it, as the naturally occurring water-soluble, yellow-pigment, lactochrome (now renamed lactoflavin). The elementary composition of lactoflavin is $C_{17}H_{20}N_4O_6$, or $C_{16}H_{20}N_4O_6$. Flavin is relatively inactive when fed alone, but when fed to rats in conjunction with vitamins B and B_4, good growth takes place even from the administration of only five gamma per rat, per day. Whether flavin is identical with the pellagra-preventive factor or whether it is one of a number of growth-promoting substances present in a complex and composite B_2 remains to be seen. Flavins can be artificially synthesized as well as isolated from natural sources. The various natural sources are milk, kidney, liver, malted barley, urine, eggs and many others. The richest source of flavin is liver and kidney tissues. The flavin in heart muscle is equal to that in yeast. Skeletal muscles are high in flavin, while fish liver is poor. Karrer and Kuhn have reported the synthesis of lactoflavin and ascribe to it the following chemical formula:

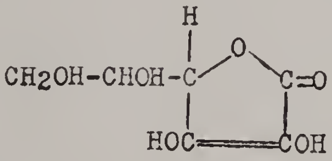


The study of the dermititis-preventive factor has yielded the least results of any. Pellagra has been successfully treated by means of vitamin B_2 given in the form of liver extract. The same preparation will also cure black tongue in dogs. Similar results have been obtained with autoclaved yeast and ventriculin. No chemical formula or chemically pure vitamin is obtainable.

The most common available source of vitamins B and G is Brewer's yeast. This material can be obtained in the powdered form or in tablet form. Wheat germ is also rich in B vitamins. Some of the more common forms of commercial products containing these vitamins are dextri-maltose with vitamin B, wheat cereal, a mixed cereal, malt preparations, yeast preparations; wheat germ under such names as Bemax and Embo, vitavose and others.

VITAMIN C

Although vitamin C is the most readily destroyed of all the vitamins, it was the first to be isolated in a pure form, and the only one so far synthesized in the laboratory. In 1928, it was isolated from the adrenal cortex and later from oranges and cabbages. A crystalline substance was prepared, having the empirical formula $C_6H_8O_6$, and to which the name hexuronic acid was given. Later it was shown that it is not a true sugar acid, but instead a highly active unsaturated hexose, whose feeble acidic properties are due to its OH groups on unsaturated carbon atoms. Its structural formula is as follows:



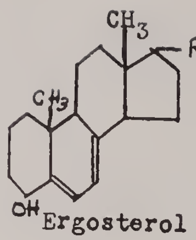
With the working out of this structure, the name was changed to ascorbic acid and later to cevitamic acid.

This material can be obtained on the market either in powder form (100 mg. in an ampule) or in tablet form. The price is $1.90 a gram if bought in gram lots, or $0.20 an ampule. This is equivalent to $862.60 a pound. The various trade names under which vitamin C may be purchased are Merck's Cebione, Hoffman-La Roche's Redoxon, and Burroughs Wellcome's Vitamin C Tablets.

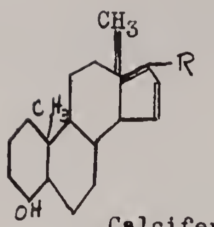
VITAMIN D

Crystalline vitamin D is probably an isomer of ergosterol. Vitamin D activity is produced by the action of ultra-violet light on ergosterol and the product is known as calciferol. Considerable evidence has accumulated during the last couple of years indicating that ergosterol may not be the only provitamin D. The ergosterol formula which seems to offer the most satisfactory explanation of the known reactions of ergosterol, as given by Windaus, is as follows:

The exact positions of the double bonds and of the hydroxyl group is still more or less under dispute. The exact nature of the side chain is similarly unsettled. It is believed that the above skeleton formula is a very close approximation to the true chemistry of ergosterol and vitamin D. Vitamin D has a phenathrene nucleus, a structure common with several other physiologically highly active sub-

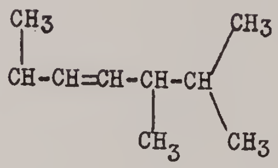


Ergosterol



Calciferol

R is:



stances, such as the female sex hormone and the carcinogenic hydrocarbons. Ergosterol, calciferol and especially neoergosterol possess estrogenic activity; also some actively estrogenic substances are definitely carcinogenic. The amount of the international vitamin D standard which produces definite healing of rickets in a rachitic rat contains about one-tenth of a microgram of calciferol. This amounts to about 150 trillion molecules. In this connection it might be mentioned that the minimal biologically active dose of beta-carotene which will restore growth has been found to be 1.2 to 2.4 micrograms per day. This amount of beta-carotene contains between 2500 and 5200 trillion molecules. This seems enough to supply several molecules for each cell in a rat's body, let alone for each of the epithelial cells which seem to possess a specific need for this substance.

Crystalline vitamin D is available on the market but not easily obtained. Your committee tried to obtain prices on calciferol but was not successful. The best-known preparation on the market containing calciferol is drisdol, a solution of calciferol in propylene glycol. Each gram contains ten thousand units. The advantage of such a preparation is that it will go into solution in all the common foods, such as milk, water, soup, gruel, orange juice, etc.

Other commercial sources of vitamin D concentrates are prepared in one of several ways. One of these is by ultraviolet irradiation of food materials containing ergosterol. An illustration of such a product is irradiated yeast which is guaranteed to be at least twenty-five times as potent in vitamin D as standard cod-liver oil. It contains about 900 U.S.P.X. units per gram. Another method of producing a vitamin D concentrate is to extract the vitamin D from cod-liver oil in a highly concentrated form. This is known as the Zucker process. The product is called vitex. Its most common use is to add it to milk. Still another method is to do as the research laboratories of Mead-Johnson have done, namely, the determination of the vitamin D potency of a large number of fish-liver oils and the production of a blended oil from only those varieties possessing the greatest potency. Thus the bluefin tuna-liver oil possesses a potency of 40,000 units per gram, while the blended oil is reduced to 8500 units per gram.

Milk is reinforced with vitamin D in the following ways: (1) direct irradiation, (2) by feeding cows irradiated yeast, and (3) by adding cod-liver oil concentrates to milk and hemogenizing it. Other foods which have vitamin D added are bread, Quaker Oats and Cocomalt. It should be added in this connection that these processes are all controlled by patents and strict supervision by research laboratories.

VITAMIN E

This vitamin is thermostable and is not inactivated by hydrogenation or saponification processes. Long exposure to ultraviolet light inactivates it. Although it occurs in Nature associated with fatty materials, rancid fats very readily inactivate it. In 1927, Evans and Burr prepared a concentrate effective in ten-milligram doses. In 1934, Olcott prepared a concentrate effective in three-milligram doses. A recent report by Evans and his associates confirms Olcott's statement that the vitamin is an alcohol; that it has a characteristic absorption band at 2980 A, and a melting point of 158 to 160 degrees. To this material they give the name alpha-tocopherol. This name is derived as follows: tokos = child birth; pherol = to bear; and -ol = indicates the alcohol. To it has been ascribed the following provisional formula: $C_{29}H_{50}O_2$.

Highly potent concentrates have been prepared from wheat-germ oil, cottonseed oil. Lettuce and palm oil also contain the vitamin.

Several pharmaceutical houses are dispensing wheat-germ oil in the form of perles containing three minums each. A suggested dose is from two to three perles daily although larger doses may be employed.

Alpha-tocopherol when given in a single dose of three milligrams always enables vitamin E deficient rats to bear young.

VITAMIN F

Vitamin F refers to the essential unsaturated fatty acids. Evans states that normal reproduction without the essential unsaturated fatty acids is impossible. A summary of results of gestation without the essential unsaturated fatty acids is as follows: (1) about 95 per cent of the animals littering do so from one to three days late and 80 per cent of the young are born dead; (2) both the number and weight at birth of the young are markedly subnormal; (3) in about 20 per cent of the cases there is failure to litter after implantation occurs, but inadequate vitamin E is not the cause of these failures; (4) vitamins A and D are not limiting factors; (5) the unsaturated compound, carotene, did not replace the essential unsaturated fatty acids; (6) suckling did not occur. Upon the addition of vitamin F, the average number of young rats born per litter increased from 3 to 5.8 and the average weight from 4 to 5 grams. Only 14 per cent of the young were born dead, as compared with 80 per cent when vitamin F was absent. There were few prolonged gestation periods, 37 per cent littering on the twenty-third day, and only four per cent on the twenty-fourth. Fifty-two per cent of the pregnant females suckled their young as compared with none when the diet did not contain vitamin F. Failures to litter were reduced from twenty to six per cent. The weight of the mothers at littering was greater. Butter fat and lard contain vitamin F. This is also true for coconut oil, corn oil, olive oil and linseed oil.

In the case of vitamins A and F, structural and functional restoration of reproductive function in the female results from curative feeding of the required vitamin after the existence of sterility has been proved, while restoration is much more difficult or impossible to achieve in the male after proved sterility supervenes from a deficiency in vitamin E.

Burr and Burr have further described a condition in rats resulting from vitamin F deficiency. The skin developed a scaly condition. Later the tail becomes necrotic and the kidneys degenerate, allowing the passage of blood into the urine. The animals always die at an early age unless fed a curative dose of fat. The feet, especially the hind ones, become scaly, and dandruff appears on the back. It seems probable that in most cases the immediate cause of death is kidney degeneration.

Linoleic acid seems to be the essential unsaturated fatty acid, with the possibility that arachidic acid may also be involved. The oils possessing the highest curative value are corn oil and linseed oil. The actual minimum of linoleic acid required is so small that it seems probable that the liver of these animals in general does not seem to be able to synthesize appreciable quantities of linoleic acid, and some of the other highly unsaturated fatty acids.

There is only one commercial concentrate of vitamin F known to the committee. This is called linol, a concentrate of linseed oil.

VITAMIN K

Dam claims that this is an antihemorrhagic vitamin which, when it is deficient in the diet of chicks, results in hemorrhages into the gizzard and other organs; and enormous retardation in the clotting of blood and in a low hemoglobin level. The experimental work in respect to this proposed vitamin is too incomplete to justify your committee in saying anything further about it.

A brief review of the above statements will show that vitamins A, B, C, D and E (and possibly also flavin) are now prepared in such pure forms that unitage can be based on the physiologic response of a given weight of the material. The same may be true for linoleic acid, vitamin F. This leaves only vitamin G to be assayed on the basis of biologic tests. Comparisons in biologic value of the naturally occurring vitamins or their value in concentrated form or as incorporated in food materials, can, therefore, be based entirely on the relative amount of the pure vitamin used. If it is not already true, it soon will be that any food material for which vitamin claims are made must have stated on the label the vitamin potency in terms of International units. In the present state of our knowledge, there is only one complication to the fulfillment of this requirement and that is in regard to vitamin D. At present, vitamin D potency is based on tests made upon rats. A certain potency in terms of rat units has been found to differ from the potency required when working with chicks or other animals. Until this complication is clarified, comparisons of biologic values for vitamin D preparations will have to be made with caution and a full understanding of this situation.

It would seem appropriate in concluding this report to cite some general principles that can be followed for judging as to whether or not a food is likely to be relatively rich or relatively poor in the important vitamins.

1. Vitamin A activity in foods of plant origin is associated with green and yellow color and sometimes with red as in tomatoes, but never in colorless products and very little with neutral colors. Vitamin A activity in foods of animal origin may be associated with yellow color. However, foods of animal origin having little or no yellow color may be very rich in vitamin A as in certain fish liver oils.

2. In the foods of plant origin, vitamin B_1 is an important constituent of whole seeds and leaves, but not of the degerminated cereals or their products. Yeast and seed germs are relatively rich in B. Foods of animal origin contain some vitamin B.

3. Vitamin C is found most widely distributed in nature in plants and is associated there with freshness and succulence. Fresh fruits and fruit juices, especially the citrus fruits, tomatoes, peppers and fresh leaves such as cabbage and seeds such as peas are the best sources of vitamin C. Roots and other fruits are important. Liver is the only commonly

TABLE I

Name of Material	*Vitamins It Contains*							*Company*
	A	B	C	D	E	F	G	
A B D Capsules	+	+	----	+	----	----	+	Abbott
A B D Malt with viosterol	+	+	----	+	----	----	+	Abbott
Accessorone	+	+	+	----	----	----	+	Upjohn
Adex Tablet	+	----	----	+	----	----	----	Squibb
Ascorbic Acid	----	----	++	----	----	----	----	Burroughs Wellcome
Autolyzed Liver Concentrate	----	+	----	----	----	----	++	Squibb
Bemax	----	+	----	----	----	----	----	Schieffelin
Brewers Yeast	----	++	----	----	----	----	++	Abbott, Mead, Fleischmann, Squibb, Upjohn, Harris
Calcium Phosphate with viosterol tablets	----	----	----	++	----	----	----	Squibb
Caritol	++	----	----	----	----	----	----	S.M.A.
Carotene	++	----	----	----	----	----	----	Burroughs Wellcome
Cebione	----	----	++	----	----	----	----	Merck
Cereal	+	+	----	+	----	----	+	Mead
Cod liver oil	+	----	----	+	----	----	----	Mead, Squibb, Schieffelin, McKesson
Cod liver oil with caritol and cod liver oil concentrate	++	----	----	++	----	----	----	S.M.A.
Cod liver oil with percomorph	++	----	----	++	----	----	----	Mead
Cod liver oil with viosterol	+	----	----	++	----	----	----	Mead, Squibb, Abbott
Cod liver oil concentrate	----	----	----	++	----	----	----	S.M.A., White, Upjohn, McKesson
Cod liver oil concentrate with caritol	++	----	----	++	----	----	----	S.M.A.
Cod-Halibut liver oil	++	----	----	++	----	----	----	Squibb
Cofron liver extract	----	+	----	----	----	----	+	Abbott
Corn oil	----	----	----	----	----	+	----	
Dextri-maltose with vitamin B	----	+	----	----	----	----	----	Mead
Drisdol	----	----	----	++	----	----	----	Winthrop
Embo	----	+	----	----	+	----	----	General Mills
Flaxseed oil	----	----	----	----	----	++	----	
Halibut liver oil	++	----	----	+	----	----	----	Mead, Squibb, Abbott
Halibut liver oil with cod liver oil concentrate	++	----	----	++	----	----	----	Maltine
Halibut liver oil with dicalcium phosphate	+	----	----	+	----	----	----	Maltine
Halibut liver oil with viosterol	+	----	----	++	----	----	----	Abbott, Mead, Squibb
Halibut liver oil concentrate tablets	+	----	----	+	----	----	----	Squibb
Halibut liver oil malt with viosterol	+	+	----	++	----	----	+	Abbott
Irradiated milk (whole and evaporated)	----	----	----	+	----	----	----	
Jeculin	----	+	----	----	----	----	+	Upjohn
Lextron	----	++	----	----	----	----	++	Lilly
Malt extract with cod liver oil and hemoglobin	+	+	----	+	----	----	----	Burroughs Wellcome
Maltine	----	+	----	----	----	----	+	Maltine
Maltine with cod liver oil	+	+	----	+	----	----	+	Maltine
Maltine with cod liver oil concentrate tablets	++	+	----	++	----	----	+	Maltine
Maltine with cod liver oil and iron iodide	+	+	----	+	----	----	+	Maltine
Maltine with halibut liver oil	+	+	----	+	----	----	+	Maltine
Maltine with spleen marrow and iron	+	+	----	+	----	----	+	Maltine
Myeladol	+	+	----	+	----	----	+	Upjohn
Navitol	++	----	----	++	----	----	----	Squibb
Neoferrum	----	+	----	----	----	----	+	Maltine
Oryzanin	----	++	----	----	----	----	----	Sankyo
Pablum	----	+	----	----	----	----	----	Mead
Percomorph oil	++	----	----	++	----	----	----	Mead
Quaker Farina	----	----	----	+	----	----	----	Quaker Oats
Ryzamin B	----	++	----	----	----	----	----	Burroughs Wellcome
Tuna liver oil	+	----	----	++	----	----	----	Abbott
Viosterol	----	----	----	++	----	----	----	Mead, Squibb, Abbott
Vitamin B pulvules	----	++	----	----	----	----	----	Lilly
Vitavose, chocolate	----	+	----	----	----	----	----	Squibb
Vitavose, plain	----	+	----	----	----	----	----	Squibb
Vitrate	++	----	----	++	----	----	----	Upjohn
Wheat germ oil	----	----	----	----	++	----	----	Abbott, Cole

eaten animal product rich in vitamin C.

4. Ordinary foods cannot be depended upon for vitamin D. Eggs are of value. Adding cod-liver oil to hens' rations increases the vitamin D content of eggs. Likewise the vitamin D value of cow's milk can be increased by direct irradiation of the milk, addition of vitamin D concentrate to the milk, or by feeding irradiated yeast to the cow. The vitamin D value of the milk from pasture-fed cows is better than that from stall-fed animals.

5. Vitamin E is found in highest concentration in wheat germ oil but it is also present in leafy vegetables.

6. Corn oil, flaxseed oil and olive oil are the best sources of vitamin F.

7. Vitamin G is found chiefly in the leafy part of plants. Among animal products, meats, milk and eggs are the important sources.

8. All of the vitamins except C are relatively stable.

Foods which have been reinforced with the various vitamins may be grouped in two classes: those which have had their vitamin D value increased by either the Steenbock irradiation method or by the Zucker cod-liver oil concentrate method, and those which have their vitamin values enhanced by adding food materials known to be unusully good sources of the vitamins desired.

In the first group fall fresh milk, evaporated milk, some cereal products of the Quaker Oats Company, Cocomalt and bread. In the second group come those food materials that have been reinforced with such products as wheat germ, rice polishings, bran, fruit juices, carotene, malt, liver extract, fish liver oil, corn oil, flaxseed oil, yeast and other naturally rich sources of vitamins. It should always be borne in mind, however, that a product to which has been added a substance known to be rich in a certain vitamin does not necessarily mean that that product will be permanently enhanced in that particular vitamin. The reason is that the natural constitution of the material or the commercial manipulations to which it has been subjected in preparation may be destructive to the vitamin. Unless the label specifically states that the final product possesses an appreciable quantity of the vitamin and that there is definite evidence that it is there in a fairly stable form, such products should be considered with suspicion.

Table 1 presents a tabulation of the better known sources of the various vitamins (+ means the vitamin is present; ++ means the vitamin has been reinforced).

The Committee wishes to express their appreciation for the splendid cooperation provided by the representatives of Abbott, Upjohn, Squibb, Burroughs Wellcome, Mead, S.M.A., Merck, McKesson, Maltine, Lilly and Sankyo in giving samples and technical data of their various products.

SPECIFIC INFLUENCES OF DIETETIC FUNDAMENTALS ON CLINICAL ENTITIES IN INTERNAL MEDICINE

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As one looks with the pathologist's gaze, so to speak, for concrete evidence of clinical value in the field of dietetics, some interesting and valuable views present themselves. If one looks into the mouth of the gift horse of progress in this specific sphere of influence, one finds the following factors with which to familiarize oneself: carbohydrate, protein, fat, minerals, vitamins, water and roughage. With these molars as mills for action, one approaches the specific clinical entities to see what the milling process of these virtues may yield in the form of definite benefits. In a previous article[1] these factors have been outlined in brief, and their contribution with respect to dental caries discussed.

PRIMARY ANEMIA

Let us now turn to that clinical entity, primary or addisonian or macrocytic anemia. Until a few years ago, the sufferers from this condition had but a few years of life to look forward to. Now, under the administration of liver by mouth or parenterally, within a few weeks erythropoiesis manifests itself through the preliminary state of reticulocytosis into erythrocytosis. The remissions of old disappear and the individual maintains a normal erothrocytic level. Minot and Murphy,[2] and Whipple[3] are the discoverers of this fact and have shared it most generously with the profession as a whole, through their thorough and interesting contributions to the literature.

ALLERGY

The allergists, such as Balyeat[4] and Rowe,[5] have pioneered in an ever increasing sphere of specificity in the field of protein influence. Our first conceptions of the mechanism of operation in this interesting phenomenon were associated with the urticarial skin reaction. Now it is known that this is but a portion of the story and that the manifestations may be in the nose, lungs, intestinal tract and brain.

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[1] Hofrichter, C. H. and Brossois, M.: Diet and Teeth. J. Am. Dent. A., 18:2310-2317, Dec. 31, 1931.

[2] Minot, G. R. and Murphy, W. P.: Treatment of Pernicious Anemia by Special Diet. J. A. M. A., 87:470-476, Aug. 14, 1926.

[3] Whipple, G. H. and Robscheit- Robbins, F. S.: Blood Regeneration in Severe Anemia; Iron Reaction Favorable; Arsenic and Germanium Dioxide Almost Invert. Am. J. Physiol., 72:419-430, May, 1925.

Case histories such as this are typical in this group:

Case 1. Male, fifteen year old school boy. Contacted December 11, 1933.

Chief complaint: Asthma. This goes back to the fifth birthday. Has cured himself with diet. If he went on orange juice, vegetables, whole wheat bread or muffins, he would clear up very well. Now this will not work. There is something now which is entirely different from his former asthma. He has not consulted a doctor for five years. He has been using a patent remedy for relief. His food has consisted of orange or grape juice, milk, cream, milk products, vegetables, meat and cereals, but no egg. Now he has a cold. He was sick with a cold three days before Thanksgiving day. He ate Thanksgiving dinner which did not seem to bother him. After Thanksgiving he took more cold and he has wheezed ever since.

Past history: The prominence of infections in childhood is striking. Began to have asthma at five years. Has had measles, whooping cough, rickets, bronchopneumonia, tonsillitis, rheumatism (knees), itch, mumps.

Family history: Father is living and has asthma. The grandfather had asthma as had the great grandfather. No hives, hay fever or eczema. The father's brother and half sister and sister have asthma, also the father's sister's child.

Personal history: Some headache on waking. Very much catarrh of nose. Much discharge. Very good teeth; not a cavity. Tonsils removed. Is short of breath. Usually at 3:00 or 4:00 a.m. will have trouble. Coughs to clear out bronchial tubes. The stomach hurts at times when he starts eating. The appetite is very poor. He is hungry, but cannot eat much; no space. Nocturia when he has asthma. Must get up frequently to urinate. Sleeps well unless he has asthma. Cooperates well; not a bad temper. Has lost between ten and fifteen pounds in weight with this spell. A freshman in high school. Is on the honor roll. The knees have been irritable.

Physical examination: A poorly nourished, bright, poorly developed individual. Frail. Cyanotic. Severe erythema following application of tourniquet. Conjunctiva badly congested. Pupils dilated. Lips cyanotic. Gums cyanotic. Teeth in excellent condition. Absence of tonsils. Deformity of left costal cartilages. Rachitic rosary. Increased anterior posterior diameter. Emaciated thorax. Coarse rales heard throughout the chest. Blood pressure 105/90. Pulse 80. No murmurs. No arrhythmia. Apex beat, fifth interspace. R.B.C.D., 2 cm. L.B.C.D., 9 cm. Liver diameter, 12 cm. in midclavicular line. Reflexes, radial and knee, present and markedly hyperactive.

Laboratory findings: Sp. gr. 1.032. Acidity, 46 degrees. Faint trace of indican. Blood: Hb., 22.48 gms. R.B.C., 7,160,000. W.B.C., 6,500. Eosinophiles, 3. Wassermann, negative.

Procedure: A 1,500 calorie diet, C. 195, P. 95 and F. 40 was given, containing no eggs. Calcium gluconate intravenously, 10 cc. on ten occasions. The food intake was gradually raised over a period of six months. The final program contained C. 414, P. 97 and F. 160. Calories, 3,484, and contained practically all foods except eggs.

Comment: The asthma first showed marked improvement and later cleared up entirely. The specific factor was eggs. The family history of allergy was strong. The balance of the feeding program was very helpful in improving the general condition. There was a gain of twenty-three pounds in weight in approximately six months.

We need some kind of a specific approach into this field of allergy. A good way into it would seem to be that suggested by Rackemann[6] as follows: ". . . the five criteria of allergy—those symptoms and signs which are characteristic of each manifestation of clinical allergy and which, when found, are helpful to the diagnosis—are: (1) a characteristic symptom dependent on a characteristic local pathologic condition, (2) the presence of some other allergic symptom in addition to the first, (3) a positive family history of allergy, (4) positive skin tests, (5) a blood eosinophilia."

If we fulfill these criteria and are careful in our approaches, some very distressing and persistent clinical entities can be corrected. Allergy is a specific state and not, as one surgeon called it, "a cloak for ignorance."

A field may be specific without there being much clinical material, but here is a clinical field in which there appears to be abundant material for those who have the patience and willingness to apply themselves.

VITAMIN DEFICIENCY

We now turn to a field which is specific. But, fortunately, in this part of the world there is little clinical material available. What wonders do we behold as we see the proper vitamins applied in beri-beri, pellagra, scurvy, xerophthalmia and rickets! I shall never forget the duodenal ulcer patient who, after her surgery for her ulcer, recovered with the administration of vitamin B, and only after its administration.[7] Pellagra and ulcer can go hand in hand. The specificity of the entities is definite but it is not easy to find a pellagral factor hiding behind a peptic ulcer skirt, so to speak. Yet this is what we must do.

DIABETES MELLITUS

Next let us consider diabetes mellitus. Where would we be in this disease without a specific knowledge of carbohydrate, protein and fat? And see what a miserable failure those who avoid the regular application of the properly adjusted program make of their existence! Stop for a moment and gaze into that panorama of events as the comatose individual, unable to respond to the approaches of his environment, gradually awakens to an ap-

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[4] Balyeat, R. M.: Hay-Fever and Asthma. F. A. Davis Company, 1928.

[5] Rowe, A. H.: Food Allergy. Lea & Febiger, Philadelphia, 1931.

[6] Rackemann, F. M.: History Taking in Allergic Diseases. J. A. M. A., 106:976-980, March 21, 1936.

[7] Metheny, D.: A Case of Pellagra Complicated by Gastroenterostomy. King County Hosp. Bull., 3:3, Oct., 1935.

preciation of his relationship to his surroundings. This is a response to specific food factors: carbohydrate combustion, water and sodium chloride restoration, utilized under insulin stimulation.

OBESITY

Obesity of the nutritional type melts away with caloric restrictions, and many a heart has been saved an early break in compensation by the elimination of overload and the protection of cardiac reserve. Here is one such case history:

Case 2. Retired school teacher, age 59. Contacted Oct. 6, 1933.

Complaint: Digestive troubles. Cannot find anything to eat. In the morning can eat her breakfast. Takes her heavy meal about 2:00 p.m. About 5:00 p.m. will throw up a sour stomach content. Will carry food in stomach from morning until midnight. Toast will go through, but butter stays in the stomach. Much mucus at times. This has been going on for seven years. Has had bowel adhesions. Two years ago had influenza. Is badly constipated. Blames the bowel for her trouble. Is very heavy. Hardly ever loses. She finds that foods vary greatly from day to day in their manner of digestion. There is a burning sensation in the intestine. Had a growth in the uterus, removed by radium. Thinks this growth was carcinoma. Back at one time dislocated through an injury.

Past history: Appendix and gallbladder removed. Uterine tumor (type undetermined) removed by radium. Always much digestive disturbance. Has taken medicine for this as long as she can remember.

Family history: Father died of Bright's disease. Mother died of influenza. Sister died accidental death. Brothers, one dead, cause unknown.

Personal history: Headache. No nasal symptoms. Sore gums. Pyorrhea. Pounding in region of heart, a crowded condition there. A soreness in the abdomen, but no pain. Appetite is good. Takes orange juice every morning. Has done so for two years. Milk causes a heavy feeling, cooked better than raw. Tea and toast are the dependable foods. Eructations from stomach very acid. Nocturia, two times. Sleeps a few hours at night, then ready to get up.

Physical examination: A very obese, cooperative person, moving with difficulty (shortness of breath). Is wearing a spinal brace. Weight, 175 pounds (normal weight for age and height, 133 pounds). Conjunctiva cloudy. Pupils react to accommodation and light. Teeth mostly extracted. Low incisors surrounded by infected mucous membrane. Pus exudes on pressure. Lungs clear. Heart, blood pressure 95/80. Pulse 64. No murmurs. No arrhythmia. Very marked gaseous distension of the abdomen. Much subcutaneous fat. Reflexes present and active.

Laboratory summary: Urine, specific gravity 1.018. 60 degrees acidity. Faint trace of albumin. Blood, hemoglobin 13.49 gms. White blood count, 10,500. Gastric analysis: maximum total acid, 67 degrees at end of second hour. Feces: free fat, mucus and blood present. B.M.R.: minus nine. Gastrointestinal examination: marked spasm of the colon with rapid movement of the meal. Practically an absence of haustral segmentation on 6 hour plate.

Procedure: *Feeding*: The initial program contained 1,286 calories. Carbohydrate 182, protein 68 and fat 31. Low residue, but not cellulose-free. In one month it was dropped to 1,000 calories and in three and one-half months to 743 calories. Then to 879 calories, where it has remained. The weight loss was 41 pounds in ten months. *Medicinal*: A wide variety of medication was attempted for the colon aspect. The most serviceable seemed to be a mixture of bismuth, soda bicarbonate, calcium carbonate and magnesium oxide. Phenobarbtial for sedative, cod liver oil, yeast, atropine and panteric substance and elix. I. Q. and S. were given.

Comment: The shortness of breath was gradually relieved as the weight became less. The blood pressure was restored to 130/80 on May 2, 1934. The loss of weight of forty-one pounds restored the patient to her theoretical normal weight for age and height. Here was a heart broken in part by overload, which showed ability to respond when the overload was removed.

EMACIATION

What a race we would have if all moderately active, normal, adult individuals were receiving an adequately balanced feeding program, with sufficient calories (approximately 35 calories per kilogram) in the form of carbohydrate, around 50 per cent; protein, ⅔ to 1 gram per kilogram of normal weight; and fat, 35 to 38 per cent; and with an abundant supply of minerals and vitamins and the proper amount of roughage![8] This formula would solve the problem in many who have no organic disease, and yet are underweight and do not know what is wrong with them.

Every pediatrician has felt the glow of joy when the "proper formula" has been grasped and the results are apparent in ounces of weight, lessened colicky pain, the glow of the skin, and increased tone in the subcutaneous tissues. Adults who are undernourished and who do not have organic disease do the same. The following history is demonstrable of this type:

Case 3. Female, age 32.

Chief complaint: Always thin. Trouble with complexion. Always worse prior to menstruation. Thought food might have some influence, but has not been able to observe such. Works hard and tires at it. Enjoys her work.

Past history: Was strong as a child. Had a great deal of stomach trouble. Ate anything and everything whenever she wished. Regularity was not a part of her activities. No injuries. The tonsils have been removed.

Family history: Father not living, cause of death unknown. Mother living, has arthritis. Brothers none, sisters one, living and well.

Personal history: A refractive error has been corrected. The tonsils have been removed. Is susceptible to colds. Some shortness of breath on exertion. Some disturbance in handling food in the intestine. Bowels regular. Menstruation regular. Sleeps well. Worries over mother's condition. Whole family nervous. Has not lost in weight. Never weighed more than 115 pounds.

Physical examination: Patient is in a psychic depression. Is introverted and self-deprecatory. Is studious. Of frail build. Nutrition fair. Height, 62¾ inches. Weight, 110½ pounds. Normal weight, 128 pounds. Considerable diffuse enlargement of the thyroid. Blood pressure, 120/75. Pulse, 112. Skin shows small punctate eruptions scattered over entire face. Elevated center, red base.

Laboratory examination: Urine, normal. Blood: Hb. 13.92 gms. R.B.C., 4,620,000. W.B.C., 7,500. B.M.R., plus seven per cent.

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[8] Rose, M. S.: Laboratory Handbook for Dietetics. MacMillan Co., New York, 1929.

Procedure: *Feeding*: A 2,500 calorie feeding program composed of carbohydrate 275, protein 130 and fat 70, on a normal basis, was first used. Three months later the calories were reduced to 2,150. *Medicinal*: (1) Lugol's sol. min. i. q. d. for 30 days, (2) liquid petrolatum half ounce at bed time, (3) viosterol, 250D, 5 minims morning and evening, (4) antuitrin "S." Eight injections, 2 cc. each.

By November the weight had reached 126 pounds, a gain of 15½ pounds. The face cleared up. Not a cold through the winter of 1935-36.

IRRITABLE COLON

Spastic colons without pathologic irritation foci in the gallbladder or appendix or peptic ulcer respond to cellulose-free programs; and, where indicated, a gain of twenty pounds in weight aids greatly in the adjustment of the functional disturbances which are associated.

PEPTIC ULCER

Peptic ulcer is no longer considered primarily surgical,[9] and the principles of management have had as their mainstay the frequent feeding of a readily absorbable, nonirritating feeding program. So definite are these responses under good management and in trained hands that the approaches to surgery are considered to be the failure of accomplishment of adequate results from their scientific use.

Here, then, is a group of clinical entities with demonstrable pathologic pictures which respond to the principles embodied within the field of dietetics.

NONSPECIFIC APPLICATIONS

McCollum and Simmonds,[10] Barborka[11] and McLester[12] have made excellent contributions in the field of dietary deficiency associated with and away from the specific clinical entities mentioned. Barborka has listed the conditions in which diet is of varying importance as follows:

Diseases of heart and arteries: heart, hypertension.

Febrile diseases: typhoid, tuberculosis, pneumonia, other infectious diseases.

Diseases of esophagus and stomach: gastritis, gastric neurosis, hyperchlorhydria and achylia, obstructive lesions of esophagus, obstructive lesions of stomach.

Diseases of liver and the gallbladder: cirrhosis (with ascites), jaundice, gallbladder disease.

Diseases of the intestine: diarrhea, flatulence, fermentation, putrefaction, mucous colitis, ulcerative colitis, diverticulosis and diverticulitis, sprue.

Diseases of blood: secondary anemia.

Diseases of urinary tract: infections of urinary tract, calculi of urinary tract, oxaluria, phosphaturia, uraturia.

Skin disease, epilepsy, migraine, arthritis, pregnancy and lactation, dental caries.

CONCLUSIONS

1. Certain definite clinical entities, such as primary anemia, allergic sensitivity, beri-beri, pellagra, scurvy, xerophthalmia, rickets, diabetes mellitus, obesity and emaciation are cited and some exemplary case histories submitted.

2. The specific therapeutic factors of a diatetic nature used were: carbohydrate, protein, fat, minerals, vitamins, water, roughage.

3. Judging by the response obtained in these specific entities, as mentioned in the literature and as seen in actual clinical experience, it would appear that the effort taken in the preparation of diets specific for each case is well worthwhile.

4. These specific dietetic factors regularly maintained are the main factors in the treatment of certain clinical entities in internal medicine as numerous authorities have already pointed out.

FIRST INFECTION TYPE OF TUBERCULOSIS IN YOUNG ADULT LIFE *

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Not long ago we believed that more than 90 per cent of children had been infected with tubercle bacilli so as to react positively to the tuberculin test during the early part of the 'teen age period. Actual testing, however, has revealed the fact that our former beliefs were not true or that the incidence of contamination has been greatly decreased. Indeed, in many parts of the country the majority of children now enter young adult life free from contamination with tubercle bacilli. In the past few years, there have been thousands of tuberculin tests administered to high school, college and university students. There is practically no state in the Union where at least some of this work has not been done. One quite frequently sees quoted the work of Hetherington et al. which showed an incidence of 90.2 per cent positive reactors at the age of eighteen years, in a certain section of Philadelphia.

Against this, we have large numbers of more recent reports from various parts of the country, showing a much lower incidence. For example, Sundberg of San Diego tested 4,887 high school students from 1932 to 1935 and found 22.6 per cent reacting positively to the test. Cox of the state of Washington tested 17,299 high school students up to May 15, 1935, and found 13.83 per cent were positive. In the St. Paul, Minnesota, junior and senior high schools in the spring of 1935, nearly 7,000 tests were administered and approximately 23 per cent were positive. In the Chicago high schools, a group of more than 15,000 students were tested in 1933 and 1934. Approximately 31 per cent reacted positively to the test. In Omaha, nearly 7,000 high school students were tested and the incidence of positive reactors was slightly less than 20 per cent. In one high school group in Iowa, Peck found 6.75 per cent positive. Throughout the nation, with a few exceptions, reports have shown 25 per cent or less of high school girls and boys reacting positively to the tuberculin test.

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[9] Lahey, F. H.: Treatment of Gastric and Duodenal Ulcer. J. A. M. A., 95:313-316, Aug. 2, 1930.

[10] McCollum, E. V. and Simmonds, N.: The Newer Knowledge of Nutrition. The MacMillan Co., New York, 1929.

[11] Barborka, C. J.: Nutrition in Health and Disease. Am. J. Digest. Dis. & Nutrition, 1:44-49, March, 1934.

[12] McLester, J. S.: Nutrition and the Future of Man. J. A. M. A., 104:2144-2147, June 15, 1935.

* Presented in part before the University of Washington Medical Course, Seattle, Wash., July 16-20, 1934.

The Tuberculosis Committee of the American Student Health Association has compiled figures from a number of colleges and universities during the past few years. The last report, published April 1, 1935, included the tuberculin test reported for the school year, 1933-34, from thirty-eight institutions, in which 25,184 students were tested with 30.3 per cent reacting positively. In the Southern University of Idaho, only 9.6 per cent of the students reacted positively to the test; in the Iowa State College, 12 per cent; yet the Hampton Institute for Negro Students showed an incidence of 59.7 per cent positive reactors.

It is possible that the first infection type of tuberculosis as manifested by a positive tuberculin test may completely die out, and the tissues lose their sensitiveness to tuberculoprotein, even when it is caused by the human type of tubercle bacillus. This may be even more likely with the bovine type. Krause believes that the incidence of infection from this type reaches its peak in childhood and as the child takes less and less milk, the supply of bacilli is not sufficient to cause reinfection so that infection eventually dies out and completely disappears. It seems quite probable that a good many persons who are now university students were contaminated with bovine type of tubercle bacilli as children, since pasteurization ordinances and area testing of cattle were not extensive ten or fifteen years ago. The chances of new infections from the bovine type of tubercle bacillus occurring in young adult life have been very materially reduced through the campaign for pasteurization and through the control of tuberculosis among cattle.

DANGERS OF INFECTION

However, there still exist a good many possibilities for 'teen age girls and boys, who have gone through infancy and childhood with no contamination, to become infected. They are just as susceptible to infection as they would have been if exposed in infancy or childhood. Krause says: "All in all, it is difficult to comprehend the logic of the frequently expressed warning that makes a sharp distinction between children and adults in respect to the dangers of exposure to tuberculous infection. It certainly is by no means clear that, person for person, the child is less resistant than the adult. As it works out in life, it is beyond dispute that the ravages of tuberculosis are in every way greater in later life than in childhood; and, even allowing for differences of environmental factors that determine illness, we would consider the proposition of a higher adult resistance as unproved. There are elements of resistance that would seem to be stronger in the child; there are other elements that appear more effective in the adult. Where the balance lies we do not know, nor may we assume to state. Quite likely it is an individual affair, and attempts to generalize promise to lead us into error.

"It would seem the better wisdom to presume not at all upon a resistance, and acquired immunity, that must be of undeterminable and hypothetical integrity in any particular case. We shall be following the larger science and come to a safer practical result if we adjudge children and adults alike before the hazards of tuberculous infection. *The only rational attitude is to protect all human beings, of whatever age, against exposure.* To allow the impression to get abroad that adults walk within a charmed circle of acquired immunity, that maturity is a privileged age, can lead only to evil, if it is accepted and acted upon. Besides, there is much evidence that it may be far from the truth."

BENIGN DISEASE

Contrary to our former belief, when the young adult becomes contaminated with tubercle bacilli for the first time in life, he develops the first infection type of tuberculosis which does not appear to differ essentially from that which makes its appearance in the body of the infant or child; that is, it is a benign disease, usually causing no significant symptoms and, therefore, would not be detected if it were not for the fact that we were watching for it.

DIAGNOSIS

Therefore, the diagnosis of the first infection type of tuberculosis in the 'teen age period consists of a positive tuberculin reaction. Other phases of the examination such as roentgenography only serve to locate the site of the lesion in a small percentage of cases. Thus, the diagnostic procedure does not differ from that described for infants and children.

When the lesions become large enough to cast shadows on the roentgen film, visible to the naked eye, they pass through the pneumonic stage, later resolve, and finally in some cases, as in children, deposits of calcium become large enough to cast shadows which can be visualized on the roentgen film. Observations on sufficiently large numbers of students of nursing and medicine have shown that, following the development of the first infection type of disease, they are no more likely to develop the acute reinfection forms, such as meningitis and miliary disease, than the infant and child. However, they are apparently just as likely to develop the chronic, reinfection type at some subsequent time as they would have been if their first infection type had occurred earlier in life. Therefore, the longer the first infection type of tuberculosis can be postponed in any individual or in any group of persons, the better, since up to the time of the development of the first infection, the individual has no tuberculosis problem. Subsequent to the development of this infection, there is a tuberculosis problem, both by reason of the sensitiveness of the tissues and the presence of living, virulent tubercle bacilli in the body. As far as the first infection type of tuberculosis is concerned, there is apparently no difference in the incidence between the sexes or in the condition of the body. Any young adult, regardless of sex, nutrition, energy reserve, etc., who comes in contact with tubercle bacilli, is very likely to develop the first infection type of disease, which will thereafter be manifested by a positive tuberculin reaction.

POSSIBLE SOURCES OF EXPOSURE

Just as the infant grows into childhood and has more contacts and, therefore, more opportunities for infection, so the child who enters into young adult life has everincreasing contacts and intimate associations. This is the time when the incidence of reinfection, chronic type tuberculosis becomes higher than in any preceding time in life. With the appearance of adolescence, there comes an association between the sexes which makes the spread of tubercle bacilli from a tuberculous young adult very easy. Every student of tuberculosis who has had a wide experience in diagnosing and treating clinical tuberculosis in the 'teen age period can cite a number of cases directly traceable to persons of the opposite sex with whom they were very intimately associated. Indeed, there is a rather close parallelism between the increased incidence of tuberculosis and that of venereal disease, particularly syphilis. Moreover, many girls and boys of this age period are gathered together in clubs, sororities and fraternities. Stiehm's report of one university sorority girl infecting more than 90 per cent of her sorority sisters emphasizes the possibilities of infection of a large group from a single open case of tuberculosis.

STUDENTS OF NURSING AND MEDICINE

Another striking example brought to light and substantiated by irrefutable evidence during the last decade is that a large number of girls and boys enter our schools of nursing and medicine and are contaminated with tubercle bacilli for the first time in life so as to develop the first infection type of tuberculosis, as manifested by a positive tuberculin reaction. In some schools, approximately 20 to 30 per cent of the students enter with positive tuberculin reactions, but 80 to 100 per cent are positive on graduation.

Thus, the first infection type of tuberculosis may be carried into the 'teen ages from infancy and childhood or it may develop during the period of the 'teen ages. In either case it is a benign form of disease, rarely causes significant symptoms, and in our experience has never caused death. *Since the fact has been well established that the tissues of the young adult do not react differently than those of the infant or child to the first infection with tubercle bacilli, we can completely dispense with the old belief that a child should be infected with tubercle bacilli in order to prevent rapidly progressive disease in young adult life.* Regardless of when it develops, the first infection type leaves the body in a hazardous condition from the standpoint of the development of the reinfection type of tuberculosis.

TREATMENT

Active treatment of the first infection type of tuberculosis among young adults is not necessary The majority of persons in this age group who develop the first infection type of disease are unaware of its presence unless the tuberculin test is administered; therefore, they do not report to physicians for diagnosis and treatment. Those who already have the first infection type of tuberculosis when they enter the 'teen age period need no more treatment for this type of disease than they did in infancy or childhood.

PROGNOSIS AND PREVENTION

The immediate prognosis is excellent but the remote prognosis, like that of the same type of disease in infancy or childhood, must be guarded because of the dangers of the reinfection type of tuberculosis developing from tubercle bacilli of exogenous or endogenous sources. The prevention of the first infection type of tuberculosis in this age period consists of avoiding contact with tubercle bacilli, that is, making sure that the community environment is free from tuberculosis. Because of the closer association between the sexes, it is particularly important that all girls and boys in this age period be carefully examined for tuberculosis in communicable form. By finding such a case, one may prevent the spread of the bacilli to a number of others. In clubs, sororities and fraternities very careful examinations should be made periodically.

When this is done, we should no longer see more than 90 per cent of the girls of a sorority becoming infected through an unsuspected source of open tuberculosis living in the same house, as Stiehm has reported; neither would we expect to see six medical students falling ill in one year from tuberculosis, after having lived in a fraternity house the previous year with an unsuspected open case of tuberculosis, as occurred at the University of Minnesota; nor would we expect to see nine young men dying of tuberculosis within ten years after they had lived in a fraternity house in college with an open case of tuberculosis, as occurred at the University of North Dakota. These are not unusual happenings, but all of them can and should be prevented.

Stiehm of the University of Wisconsin, who has developed a splendid program of tuberculosis control among the students, including the freshmen, sophomore and junior classes, states that since this program of tuberculin testing and subsequent roentgen film examination has been in effect, he has yet to have a student report with symptoms. In all cases thus far he has noted progression of early lesions before they produced symptoms.

Hall of the University of Washington has recently administered the tuberculin test and made roentgen films of the positive reactors of the employees and administrative staffs, in other words, all persons coming in contact with students.

Perhaps the most serious reflection upon prevention of tuberculosis at the present time is the contamination of such large numbers of students of nursing and medicine. We have developed contagious disease technic, which has been found adequate in preventing the spread of typhoid fever, diphtheria and other communicable diseases from patients to students. A few decades ago, anyone who had advocated contagious technic for the control of these diseases would have met with much opposition. *In another decade, we will look back upon those who are now offering most strenuous opposition to contagious technic to prevent the spread of tuberculosis from patients to students as obstructionists of the first order in the tuberculosis control program.*

The Medical School Faculty of the University of Minnesota in the late fall of 1935 passed a ruling to the effect that, beginning with January, 1936, all patients entering the University Hospital, regardless of diagnosis or complaint, would be given the tuberculin test and all positive reactors would have roentgen films and those who showed any abnormal shadows would have very careful clinical examinations to determine whether tuberculosis exists in a clinical form. This procedure will prevent the exposure of students of nursing and medicine to unsuspected cases of tuberculosis while being treated for other conditions in the hospital.

The second important step taken by this group was to provide strict isolation technic for every patient in the hospital suffering from tuberculosis in a communicable form. Thus, the Medical School should very soon become as safe for the students from the standpoint of contracting tuberculosis as any other school on the campus. When every hospital in the country adopts similar procedures, the incidence of tuberculosis among students of nursing and medicine, as well as graduates of these professions and others caring for patients, will show a marked reduction and should soon approach that of the general population.

The Waterhouse-Friderichsen Syndrome. E. E. Aegerter, New York (*Journal A. M. A.*, May 16, 1936), adds a case of his own and one case from the records of the Willard Parker Hospital which in history, symptomatology and pathology give the typical characteristics of the Waterhouse-Friderichsen syndrome. The syndrome was first accurately described in the literature in 1901. Since that time it has been recognized in England and Germany as a disease entity. The symptomatology includes sudden onset, malaise, restlessness, and often gastro-intestinal symptoms. These are followed shortly by lethargy, which rapidly deepens into coma. High fever, weak, rapid pulse, intense cyanosis and purpuric hemorrhages into the skin are characteristic. The disease is usually fatal in from sixteen to twenty-four hours. Massive, bilateral adrenal hemorrhage is the most common postmortem observation.

CONGENITAL CYST OF LUNG

REPORT OF ONE CASE

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Noninflammatory cysts of the lung, formerly regarded as quite rare, are being reported with increasing frequency in the past few years. It is quite apparent that the condition has escaped recognition many times in the past, for the disease is not one which could conceivably be increasing. Most of the current reports are using the term, "Congenital Cystic Disease of the Lungs," although there is much active discussion as to whether the cysts are in reality congenital. The report of a single case is still justified, and continued reports and discussion should result in more general awareness of the condition on the part of the medical profession, so that perhaps within a few years we may accumulate more comprehensive knowledge of it as a disease entity.

These cysts may be single or multiple, large or small. In all probability they represent cystic dilatation of bronchi or bronchioles, because they often have an epithelial lining like that of bronchi and because a valve-like communication with a bronchus can usually be demonstrated. This latter feature accounts for the fact that they do not slowly collapse but remain continually distended with air. If uninfected, they usually contain only air, sometimes a small amount of clear fluid also. They are assumed to be congenital in all cases because they are sometimes found in infants, and because in most cases reported in adults the condition has clearly been present for many years, perhaps since birth, without causing symptoms.

There is no characteristic symptomatology that we can recognize as yet, and the diagnosis, if made during life, has almost always been made on the characteristic roentgenologic findings.

The present report will not attempt a more elaborate discussion of the subject, but is merely concerned with the report of a single "typical" case, if there is such a thing. An excellent recent discussion of the subject is given by Pearson,[1] and a good roentgenologic presentation by Freeman.[2] Each author includes a good bibliography.

CASE REPORT

Male, age 31 years. In 1918 he was sent to a tuberculosis sanitarium at the age of 13 with a diagnosis of pulmonary tuberculosis. Roentgen films were taken. (Unfortunately these have not been saved. They would make interesting comparison with those taken now, seventeen years later.) He remembers feeling very well at the time he was forced to go to the sanitarium as a boy; he recalls no important symptoms at the time; and after he had remained there in bed for two months his parents removed him over the protest of the physicians, who insisted he was not cured. Since then he has been in good health until two years ago, when he lost about fifteen pounds in one year, due presumably to overwork and moderate dissipation. Becoming alarmed because of his old history, he regulated his own habits and diet and promptly regained twenty pounds. He now feels quite well and is without symptoms.

In the course of a general examination, the lungs presented the only significant abnormal findings: tympany, suppression of breath sounds, and a few scattered rales over the region of the left lower lobe. A roentgenogram disclosed the findings shown in figure 1. In the stereoscopic view, it could be easily shown that the entire lower lobe on the left side was composed of a large multilocular cyst. The heart and mediastinal structures are displaced slightly to the right. This, together with the fact that the air in the cyst remains constant with respiration, as demonstrated under the fluoroscope, indicates that the cyst is kept full of air by some valvular mechanism connecting it with a bronchus; otherwise the air would eventually become absorbed. No fluid is demonstrable in the cyst.

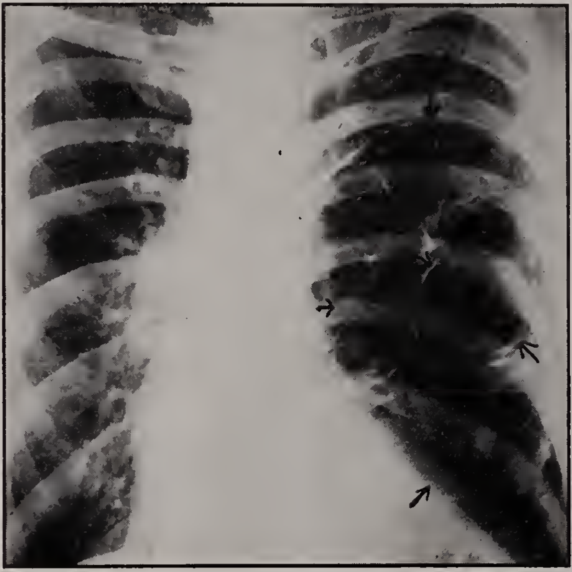

Fig. 1. Upper arrow indicates upper border of left lower lobe which is replaced by huge multilocular cyst. Other arrows indicate portions of the wall of the cyst and septa within it.

It is noteworthy that he is without symptoms, such as cough or pain, and that he is conscious of no shortness of breath even on exertion. We may presume that the same condition existed at least seventeen years ago and was mistaken for pulmonary tuberculosis, the air spaces being mistaken for cavities or perhaps partial pneumothorax. This has often happened in other cases reported.

The condition is not progressive. Generally speaking, the prognosis in this case is favorable, and no therapy is contemplated. If infection should occur in the future, perhaps in association with a pneumonia, an exudate might accumulate rapidly in these pockets and prompt drainage would be indicated.

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[1] Pearson, E. F.: Cystic Disease of Lungs, with Report of Eight Cases. Illinois M. J., 67:28-37, Jan., 1935.

[2] Freedman, E.: Congenital Cysts of the Lungs. Am. J. Roentgenol., 35:44-52, Jan., 1936.

RESPONSE OF THE BODY TO INFECTION; IMMUNITY AND FEVER

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(*Concluded*)

Influence of various factors on immunity. The influence of diet upon the ability of the body to withstand infection has been frequently studied, but the only fact conclusively established appears to be that frank cases of vitamin A deficiency are less resistant to infection than are normals. There is some evidence that a lack of vitamin C has a similar effect, but this must be regarded as questionable at best. With the exception of the obvious effects of extreme malnutrition, no other variations due to changes in quantity or type of food intake have been established. Even in the case of vitamin A, resistance to infection does not appear to break down until the avitaminosis reaches a severe stage, and there is no evidence that excessive quantities of this vitamin confer additional protection.

A lengthy review has recently appeared in which the influence of fatigue upon resistance to infection is discussed, and the conclusion is reached that muscular fatigue, at least, plays a minor role in changing the ability of the body to withstand disease. It has been suggested that fatigue may activate a latent infection.

We are very ignorant as yet of the influence of seasonal or climatic variations upon resistance. Although clinical observations indicate that, especially with regard to upper respiratory infections, climatic differences are significant, there are no carefully controlled observations from which definite conclusions may be drawn. Our best guide in this regard is still the observation and opinion of the majority of the medical profession. There are certainly marked differences in the incidence of various diseases in different regions, but whether these depend upon climate, race or other unknown factors cannot be stated. In this connection such observations as the absence of hemolytic streptococci from the throat smears of inhabitants of Cuba are of interest. Further studies will undoubtedly contribute greatly to our knowledge in this field. The seasonal variations in the incidence of certain diseases, with which we are so familiar, cannot be said to be due to variations in resistance but appear to be more closely correlated with environmental factors that increase the opportunities for the spread of infection.

The multiplication of bacteria may be favored by certain local changes in the tissues. The presence of silica dust in the air and its consequent deposition in the lungs with the development of silicosis has long been known to favor the development of the tubercle bacillus. Experimental studies show that other dusts do not act in this manner. The tetanus bacillus is known to proliferate more rapidly in necrotic tissue, which is one of the indications for the thorough debridement of wounds. It has been found that the favoring factor is the low oxygen tension present in tissue which has been deprived of its blood supply. The oxygen tension in normal tissues is too high to permit active growth of the tetanus organism, which requires relatively anaerobic conditions. Ligation of the blood supply, however, or injection of calcium salts, both of which lower oxygen tension, lead to rapid growth of tetanus organisms in the injured area. In connection with the effect of calcium it may be noted that soil, which is a common contaminant of wounds, frequently contains a high percentage of calcium and may thus favor the growth of tetanus and other anaerobic organisms.

Natural antibodies. A large proportion of the adult population is relatively immune to many of the common infectious diseases. Antibodies against diphtheria, scarlet fever, poliomyelitis, etc., may be present in the blood, even though the individual has never exhibited the clinical manifestations of the disease or has been immunized against it. For want of a better term, this may be referred to as "natural immunity," although it is not believed to be "natural" in the sense of being present irrespective of any external stimulus. The newborn may possess antibodies which have been transferred from the maternal blood, and seems to receive a further supply in the colostrum during the first days of nursing. Such a passive immunity, however, is short lasting. After the first months of life the individual tends to become increasingly susceptible as the passive immunity transferred from the maternal parent disappears. If large numbers of the population in the various age groups are tested, it will be found that with increasing age the proportion showing immune reactions to certain common diseases increases markedly, in the absence of any known exposure or infection. The best interpretation of this gradual acquirement of "natural immunity" which we possess at present is based upon the theory that frequent exposure to small numbers of organisms, with which the body is able to deal without exhibiting symptoms of the disease, finally results in the presence of immunity. The facts are best known with reference to those organisms that produce an exotoxin, such as the diphtheria bacillus and the hemolytic streptococcus of scarlet fever. It has been found that immunity is developed more slowly in those regions where exposure to infection is minimal, and more rapidly in urban communities where opportunity for infection is greater.

FEVER

The clinician sees fever most commonly as an accompaniment of the acute infections. Here it is due, apparently, to the presence in the body fluids of foreign proteins in the form of bacteria and their products. It has been adequately demonstrated that any protein and many split products of proteins, when injected parenterally, will cause a similar rise in temperature. It is interesting that there is a marked variation in the activity of the various proteins in this respect; bacterial proteins are particularly effective. Of the purified proteins, nucleoprotein is especially active and small doses may cause a considerable temperature increase, while egg albumin has much less effect; the reason for such difference is not apparent. Fever may result not only from the presence of proteins which are foreign to the body, but also from the liberation into the body fluids of proteins which are normally contained within the tissue cells.

An extensive necrosis or autolysis of any organ, with the resultant liberation of cell proteins which are not normally found in the blood or tissue fluids will produce fever. This may be illustrated by the course following extensive burns, where even in the absence of infection fever is a common sequela. Advantage is taken of this effect of foreign protein on the temperature-regulating mechanism in the intravenous injection of typhoid vaccine for the therapeutic production of fever in arthritis, indolent corneal ulcer, etc. The malaria treatment of general paresis depends upon the same phenomenon, since the chill and fever of malaria result from the abrupt liberation of organisms from the infected red blood cells.

Fever, or hyperthermia, may result in man from a number of causes other than bacterial infections. A physical hyperthermia which may progress to the stage of heat stroke occurs whenever the heat and humidity of the environment are sufficiently high to prevent the loss of heat from the body at the normal rate. In heat stroke of severe degree the temperature-regulating mechanism of the central nervous system is apparently affected; but the phenomena attending moderation hyperthermia produced by the hot humid environment either accidentally or for therapeutic purposes are no different from those present in infectious fevers nor any more productive of permanent harm.

That injury to the brain may produce fever was demonstrated long ago following experimental manipulation in the region of the midbrain. The hypothalamus is especially concerned with the regulation of body temperature; this may explain why surgery in this region of the brain, especially about the pituitary body, is often followed by a hyperpyrexia which is extremely difficult to control. Fever will also occur in the presence of marked dehydration; in fact, we shall see that dehydration is one of the mechanisms by which an increase in temperature is brought about in infectious fevers. Excessive diuresis without replacement of the lost water, intravenous injection of hypertonic salt solution and other dehydrating measures will induce fever in experimental animals. It has recently been shown that, when much sugar is being excreted in the urine in diabetes and there is a consequent polyuria, the dehydration so produced may lead to a considerable rise in temperature. Finally, certain chemical agents such as cocaine and dinitrophenol will give rise to fever when administered in sufficiently high dosage, their action being apparently to increase cellular metabolism.

We are accustomed to expect a beneficial influence from any of the phenomena that are a part of the response of the body to infection. And fever is ordinarily considered as one of the mechanisms which aids in the fight against bacterial invasion. Yet the question of the favorable influence of fever is one which demands consideration, since we know that in extreme hyperpyrexia the high temperature may cause harm if continued over too long a period. Clinically we have learned that reduction of the fever by baths seems to be of benefit in typhoid, while in luetic infections we obtain improvement by artificially elevating the temperature. The finding of parenchymatous and fatty degeneration at autopsy in patients who die of fever cannot be accepted as indicating that such changes can be caused by fever *per se,* since similar changes are not found in animals exposed to artificial fevers for long periods. In itself, a moderate increase in temperature up to 103-104° F. seems productive of little harm, provided the nutrition of the patient is maintained by a caloric intake adequate to supply the increased metabolism of the patient. There is much evidence to show that fever increases the activity of all the mechanisms which we have considered above in the discussion of immune reactions. The reactions of the reticuloendothelial system and phagocytosis by the neutrophiles are augmented, and the production of antibodies is increased.

It was generally believed at one time that the elevation of temperature impaired the ability of most organisms to multiply in the body. This theory, however, rests on rather slender evidence and it is very doubtful whether the majority of bacterial species are inhibited in growth by temperatures which the human body can tolerate for reasonable periods. A definite exception in this regard is the gonococcus, the evidence being quite clear that neisserian infections are favorably influenced by artificial fever. The value of malaria or diathermy treatments in central nervous system lues has also been established, but at least for the present it appears impractical to attain sufficiently high temperatures to effect a sterilization in the primary or secondary stages of syphilis.

The mechanisms of fever. Fever resulting from infection or the administration of foreign protein appears to be brought about by a "resetting" of the temperature-regulating centers in the central nervous system, the production and loss of heat being so readjusted that a new equilibrium is reached at a higher body temperature. The processes by which heat is lost are ordinarily subservient to heat production. Production may vary from a minimum level, as seen during complete rest in the basal state, to a value several hundred times greater during vigorous exercise. Under ordinary conditions the mechanisms for heat loss compensates very accurately for such changes in production, since the temperature does not usually rise more than 1 or 2 degrees even during sustained physical activity.

In infectious fevers, again, the processes by which heat is lost appear to be primarily responsible for the regulation of temperature and for the readjustment of the heat content of the body. If the stimulus for fever production appears abruptly, as in the malarial chill or following the intravenous injection of typhoid vaccine, heat production is increased by a greater tone of the skeletal muscles or even by active shivering. The formation of heat in the liver is also believed to be increased under these conditions, some even ascribing to this organ a more important role than is played by the muscle masses of the body. At the same time heat loss is greatly reduced by a decrease in blood flow to the skin, a paralysis of the sweat glands, and an increase in the concentration of the blood. All of these changes seem to be brought about by nerve impulses originated in the hypothalamic region of the midbrain, since destruction of this area not only abolishes completely the ability of the experimental animal to regulate its body temperature, but destroys its ability to develop fever after the intravenous injection of protein.

It is difficult to assess the relative importance of the various mechanisms mentioned above. Concentration of the blood will decrease heat loss by reducing the amount of insensible perspiration and perhaps by aiding in the redistribution of blood, tending to decrease the blood supply of the skin. Such changes in concentration are brought about by a removal of water from the blood by the liver; the blood does not concentrate in fever after removal of the nerve supply to this organ. The decrease in blood flow through the skin and subcutaneous tissue and the paralysis of the sweat glands are the result of changes in the activity of the sympathetic nervous system, governed by its hypothalamic center. Yet fever will still occur after complete surgical removal of all of the sympathetic nerves, although the sympathectomized animal will not show as abrupt or as marked a temperature rise as will the normal. The increase of temperature after sympathectomy is presumably due largely to increased heat production by the muscles and perhaps by the liver, although it has not yet been ascertained whether or not blood concentration may still occur.

The speed with which any chemical reaction takes place is increased by a rise in temperature. And since the metabolic processes of the body are in the last analysis chemical reactions, it is to be expected that fever will be accompanied by an increased metabolic rate and, therefore, by a greater rate of heat production. Actually this increase has been shown to amount to 7 per cent for every degree Fahrenheit. During fever and in the presence of the increased heat production which accompanies it, the amount of heat loss may, therefore, be even greater than is present when the temperature is normal. The maintenance of the fever once it has become established is due to a *relative* disproportion between the production and loss of heat, and not to an absolute decrease in rate of heat loss. It is important to recognize that the increased heat production in fever is secondary to the rise of temperature, and not responsible for the rise. An increased production which is not dependent upon increased temperature occurs only when the fever is of abrupt onset, and seems to be brought about chiefly bv shivering. A number of other mechanisms which are probably of minor importance may be concerned, but lack of space forbids their discussion.

The medical management of fever. Certain changes of the metabolism of the body in a fever, regardless of its origin, demand our attention. In the presence of the increased metabolic rate and the consequently more rapid oxydation of foods, the energy reserves of the body tend to become depleted unless the caloric intake is increased. There is a greater protein breakdown and loss of nitrogen; the normal protein intake may not be adequate to meet the requirements of the hyperthermic patient. Although fever in many respects seems designed to promote the defenses of the body in their struggle against infection, its most serious aspect is this tendency for the depletion of the energy reserves. Since anorexia is commonly present, the patient draws upon his supply of stored carbohydrate which is rapidly used up. If the caloric intake is inadequate, fat is mobilized from the depots, and when fat becomes the chief source of energy, ketosis and acidosis make their appearance. We have learned that provision for the nutritional requirement of the patient is of major importance in typhoid, but it has been perhaps too little emphasized that the same logic must apply to any protracted fever. The inclusion in the diet of easily assimilable carbohydrate, such as the simple sugars, in amounts adequate to prevent ketosis and spare protein is of especial importance. It should be recalled that with a temperature of 103° F. the metabolism of the patient is 30 to 40 per cent above the basal level, even when resting quietly in bed.

Since we concede that fever is an aid to the defenses of the body, while we realize that if the temperature remains at high levels for long periods serious harm may be done the patient, we must consider when means for the reduction of temperature are indicated. The present tendency is to regard a fever of 103 to 104° F. maintained over periods of several days as rather more beneficial than not, and to refrain from attempting to reduce the temperature in such patients unless particular conditions so indicate, is in full accordance with the known facts. For one interested in medical history, the change from some 200 years ago, when fever was a diagnosis in itself and any method by which the temperature could be reduced was eagerly employed, is a fascinating aspect of the advance of medical knowledge and the value of the study of the normal functions of the body. The more important indications for the reduction of fever are temperatures higher than 103-104°, or the inability of the patient to maintain adequate nutrition with an even lower temperature. While we have available a number of drugs for the reduction of temperature, no procedure appears more generally satisfactory than the cool or tepid sponge bath. There is some indication that such spongings are beneficial to the circulation. Many of the harmful effects of infectious fevers are due to the actions of the bacterial toxins on the cells. There is no evidence that the damage done by such toxins is lessened by decreasing the temperature.

Artificial fever in therapy. It is impossible to leave the subject of fever without mentioning the increasing use of artificial means for the production of hyperpyrexia. The medical journals are replete with advertisements of apparatus for this purpose, and much confusion has resulted from the claims and counterclaims of those who advocate one or another method. At present the following statement is entirely justified: there is no evidence to suggest that any of the various means employed for the elevation of temperature have any inherent value in themselves. Whether the heating is produced by ordinary diathermy, by short wave diathermy, by the inductotherm or by the hot chamber, the effect upon the patient of a sustained temperature rise is as far as we now know identical. No specific destructive effect upon bacteria or any other especial virtue of any one method has been demonstrated. The effect produced is the effect of fever; the fact that electric currents pass through the body is of no therapeutic significance.

Most of the mechanical methods now employed seem more dependable and are subject to better control than are the use of malaria or the intravenous injection of typhoid vaccine or other foreign protein. Yet none are without some risk. The use of hot baths has been found especially dangerous, because of the extreme dilatation of the external vessels and tendency toward acute circulatory failure. Indeed, circulatory collapse may be induced by any method which brings about too rapid an increase in temperature. It must be recalled that. when artificial means are used to produce fever, the body is not cooperating, but on the contrary is employing every means to promote heat loss. Sweating is profuse and may lead to chloride loss unless salt is given with the drinking water; peripheral dilatation is extreme and there is a consequent tendency for the blood pressure to fall unless vasoconstriction in the splanchnic area occurs to compensate.

Artificial hyperpyrexia must be regarded as still in the experimental stage, both with regard to indications for use and method to be employed. Its value in general paresis can no longer be questioned; there is good evidence for its beneficial effect on gonococcal infections and it appears to be useful in at least certain cases of arthritis. But like other new and unusual developments in the field of therapeutics the interest aroused has led in some instances at least to overenthusiasm.

GASTRIC MOTILITY FOLLOWING SUBTOTAL GASTRECTOMY*

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Subtotal gastrectomy has always been known as a dumping operation. The stomach empties rapidly, at first in from twenty to sixty minutes, depending on the kind of operation; and later in from one to one and one-half hours. The roentgenogram shows the upper jejunum to be dilated to two or three times its normal size, and there is small intestinal hurry, so that the meal reaches the lower ileum in from one-half to two hours. This results in a rather constant train of symptoms, consisting of a feeling of faintness, fullness after eating and often an intractable diarrhea. Usually the jejunum receives the food in small quantities from the duodenum, but following gastrectomy the intestines receive larger quantities of poorly comminuted food and are overdistended, irritating the sympathetic nerves. These symptoms may eventually disappear or may recur for a year or more. They have been somewhat relieved by feeding small quantities of food at frequent intervals, and the use of hydrochloric acid.

It has been shown by Emery[1] that, following gastrectomy, dogs show faulty digestion of fats due to the intestinal hurry and this very probably explains why so many patients, following subtotal gastrectomy, fail to gain weight and strength.

Ravdin,[2] working at the University of Pennsylvania, has shown that hypertonic solutions of glucose delay the emptying of the resected stomach, as well as in the unresected organ, and that the contents recovered from the intestines were isotonic in both instances. The stoma in the resected animals is held open to a degree by its scar tissue and he feels that the delay in emptying comes from the intestinal and not the gastric side. Both he and Pendergrass have shown that glucose, when coming through the stoma into the intestine, causes a contraction of the intestine which lasts for some time. It has also been demonstrated by Thomas, Crider and Mogan[3, 4] that irritating the duodenum delays emptying of the stomach, due to the inhibiting of gastric peristalsis, probably by the humeral mechanism of enterogastrone and not by pyloric action. Shay and Cohn[5] have shown the same thing by a different method. They placed a duodenal tube through the stoma of a gastrectomized stomach to various levels in the intestines and by introducing solutions of HCl and sodium bicarbonate were able to show delay in gastric emptying, which, of course, must be due to reaction from the intestinal side.

In the light of these findings it seems reasonable to suppose that the smaller the stoma, consistent with adequate emptying of the stomach, the better the chance the intestine has to delay the flow by contraction of its walls.

Eusterman and Balfour[6] have shown that most gastrectomies are performed about five or six centimeters above the incisura, due to the location of the lesion in most cases, and cites this as the point of election when possible, even though the lesion is much nearer the pylorus, in order to remove the pyloric antrum and cut down gastric acidity. They state that usually the cut stomach contracts until it is approximately the size of a gastroenterostomy opening and it has been their practice to use the entire cut end of the stomach in making the anastomosis to the jejunum.

Just what is an adequate opening? Stomachs vary in size and, therefore, in making the anastomosis with the complete cut end of the stomach the stoma must vary in size. It would seem that an opening equal to the diameter of the jejunum at the level selected should be sufficient. It is believed by many investigators that, following gastrectomy, the remaining gastric fibers act as a substitutionary mechanism for the pylorus and act somewhat like a sphincter, although the mechanism is controlled from the intestinal side. Whether this be true or whether Ravdin is correct in his theory that the stoma is closed by contraction of the walls of the intestine, it still seems that the smaller the opening, the more efficient the closure. In this regard I would like to present the following case:

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*Read before a Staff Meeting of King County Hospital, Seattle, Wash., April 8, 1936.

[1] Emery, E. S., Jr.: Cause of Faulty Digestion in Dogs Without Stomachs. Am. J. Digest. Dis. and Nutrition, 2: 599-608, Dec., 1935.

[2] Johnston, C. G. and Radvin, I. S.: Action of Glucose on Emptying of Stomach; Effect of Varying Concentration in Both Normal Stomach and After Various Gastric Operations. Am. Surg., 101:500-505, Jan., 1935.

[3] Thomas, J. E., Crider, J. O. and Mogan, C. J.: Study of Reflexes Involving Pyloric Sphincter and Antrum and Their Role in Gastric Evacuation. Am. J. Physiol., 108: 683-700, June, 1934.

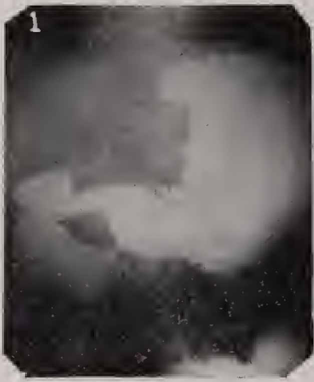
[4] Thomas, J. F. and Crider, J. O.: Rhythmic Changes in Duodenal Motility Associated with Gastric Peristalsis. Am. J. Physiol., 111:124-129, Feb., 1935.

[5] Shay, H. and Gershon-Cohen, J.: Experimental Study in Gastric Physiology in Man; Mechanism of Gastric Evacuation After Partial Gastrectomy as Demonstrated Roentgenologically. Am. J. Digest. Dis. and Nutrition, 2:608-613, Dec., 1935.

[6] Eusterman, G. B. and Balfour, D. C.: The Stomach and Duodenum. W. B. Saunders Co., Philadelphia, 1935.

T. B., age 66 years, was admitted to King County Hospital on November 25, 1935, giving the history of having suffered from pain in the epigastrium in 1930, coming on four to five hours after eating. He consulted a physician at that time in Cleveland, who diagnosed a cancer of the stomach and gave him 102 roentgen treatments which brought marked relief. He was symptom-free for the following four years. One year ago he began again to have epigastric pain and vomiting, three to four hours after eating, which became progressively worse.

He was treated in the Out Patient Department by a Sippy diet. He was also roentgenographed at that time and there was demonstrated a protrusion on the lesser curvature which was characteristic of a gastric ulcer. The duodenum filled normally, no six-hour residue. He had a hemoglobin of 80 per cent, red blood cells 3,540,000, white blood cells 7,200. Two months ago he suffered a sudden attack of palpitation of the heart and faintness. He was treated in the Out Patient Department and was sent home. He continued to suffer from faintness, loss of weight, weakness and had tarry stools. When admitted to the hospital on November 25, he was pale, pasty, suffered from tarry stools and marked epigastric discomfort after meals and appeared weak and emaciated.



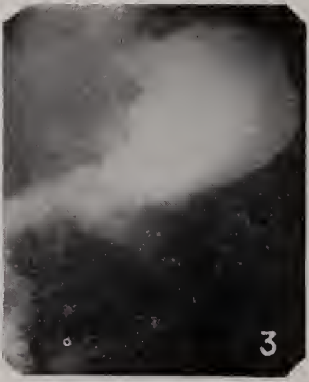


Fig. 1. Stomach before operation.
Fig. 2. Twenty-eighth postoperative day, showing lack of function of stoma.
Fig. 3. Seventy days postoperative, showing perfect function of stoma.

Physical examination showed a marked systolic murmur at the mitral area, some edema of the extremities and evidence of slight decompensation. Blood count showed hemoglobin of 42 per cent, red blood cells 2,500,000, white blood cells 9,800. Blood chemistry showed blood urea 19.47, creatin 1.54, icteric index 5. Roentgenograms showed evidence of constriction of the lower one-third of the stomach, suggestive of cancer (fig. 1); 10 per cent six-hour residue. Twenty-four hour examination was negative.

Gastric analysis showed:

	Fasting	3 min.	2 min.	3 min.	4 min.
Total acid	11	7	6.4	9.2	7.5
Free HCl	0	0	0	0	0
Occult blood	+	+	+	+	+
Lactic acid	0	0	0	0	0

Stool Examination: Clay colored and positive for occult blood. He was transfused twice, each time receiving 450 cc. of blood and on December 13 his hemoglobin had risen to 60 per cent.

Operation was performed on December 20. The omentum was found adherent to the anterior abdominal wall, with adhesions particularly marked over the lower abdomen. There was present a large ulcer on the lesser curvature at approximately the incisura, to which the gastrohepatic omentum was adherent. There was also an ulcer on the greater curvature opposite it. Both of these ulcers were indurated and the craters were about the size of a nickel. The stomach was removed without much difficulty, the upper two cm. of the duodenum being included and the stomach resected about 4 cm. above the incisura. The opening in the duodenum was closed in the usual way, and the cut wall of the stomach was closed, beginning at the lesser curvature for about one-half of its diameter. The jejunum was brought up by short loop method and a Polya anastomosis performed. The opening when completed would admit three fingers and the operation was completed in the usual way.

The patient withstood the operation very well and although somewhat shocked, rapidly recovered under intravenous glucose and saline. A Levine tube was inserted and the stomach kept empty by suction. He was given intravenous glucose for the first six days and then a Sippy diet was instituted. He developed a slight superficial wound infection which rapidly cleared up, had some belching of gas but no nausea or vomiting at any time. Twenty-one days after the operation he was out of bed.

On the twenty-eighth day the gastric contents were aspirated and found to show a total amount of 250 cc.; total acid, 54; free HCl, trace; occult blood, negative. Roentgenograms taken the same day showed a 70 per cent six-hour residue and a 40 per cent twenty-four hour residue (fig. 2). The films were repeated after belladonna was given by mouth and the same result was obtained.

Due to the fact that he had no discomfort, no nausea, no vomiting and seemed to be gaining his strength, he was allowed to go home on January 20, 1936, and the Sippy diet was continued, liver being added and iron by mouth. On March 10, he was put on a bland diet, and a roentgenogram taken on the same day showed that the barium passed rapidly through the new opening, with complete emptying of the stomach in three hours (fig. 3). On April 6 he had gained fourteen pounds since the operation, weighing 136 pounds, which is within four pounds of his very best weight. He has had no indigestion, no nausea, no bloating or flatulence and his bowels move once or twice a day. He eats three times a day and really enjoys his food. He states that he feels better than he has for years, and is very anxious to obtain a job and go to work.

In my opinion the roentgenograms taken on the twenty-eighth day, showing a lack of emptying of the stomach, is of interest. Forty-five days later this condition had entirely disappeared and the stomach emptied in three hours. I believe this delayed emptying of the stomach was not due to its size nor to spasm or edema, but to the atonic condition of the muscle which had been cut across, leaving an aperistaltic bag without any propulsive power. Later the muscle regained its tone and was able easily to expel its contents. In the above named case, the stomach retained its contents about twice as long as the usual Polya operation. Due to this fact and to a gastric acidity of 54, I feel that some gastric digestion is taking place. The patient has had no symptoms of any kind suggestive of gastric dumping.

I have reviewed gastrectomies performed in the various hospitals in Seattle, and have been able to collect statistics on sixteen cases which were roentgenographed within the first thirty days following the operation. One of these cases was from King County Hospital, and the other fifteen from Virginia Mason Hospital, with roentgenograms taken by Dr. Dwyer. In all of these cases we find the typical dumping of the stomach, emptying in from fifteen to twenty minutes. In one case within sixty days following the operation, Dr. Dwyer gave a meal consisting of toast, soft boiled egg, oatmeal, milk and coffee mixed with barium, and the stomach was completely emptied in forty-five minutes, as was also the entire upper intestine, and the food material was in the lower ileum. This shows that the gastric dumping and the upper intestinal hurry is almost as marked as when the ordinary watery suspension of barium was used.

SUMMARY

A case of subtotal gastrectomy has been presented in which the end of the stomach was closed until the opening corresponded approximately to the diameter of the jejunum. A roentgenogram on the twenty-eighth day following the operation showed an apparent nonfunctioning of the stoma. Forty-five days later the anastomosis functioned perfectly and the stomach retained the barium for two hours instead of dumping within fifteen to twenty minutes as is so often seen following this operation. With a total acid of 54, I believe there is some gastric digestion. I would like to suggest that atony of the gastric musculature with lack of propulsive power and not an inadequate opening is the cause of the apparent nonfunctioning of the stoma shown in early roentgenogram.

A NEW PRINCIPLE IN TREATMENT OF PERFORATED PEPTIC ULCER

PRELIMINARY REPORT AND CASE HISTORY *

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I have recently had an experience which has suggested very strongly to me that there is perhaps a new principle in the treatment of perforated peptic ulcers which should be called to our attention.

CASE REPORT

F. J. A., age 28.

Present illness: Jan. 7, 1936, 10 p.m. Patient stated that he retired the night before entrance into the hospital at 9 p. m. He was in perfect health so far as he knew. At 4 a. m. he was awakened out of a sound sleep with severe pain in his epigastrium. He did not vomit. He at once got up and prepared two glasses of soda solution, each containing one teaspoonful of soda bicarbonate. He drank this with a moderate amount of relief. At 6 a. m. he still had pain in the epigastrium, so he called his local doctor who saw him at 7 a. m. After examination the doctor concluded the patient was having a recurrence of symptoms of peptic ulcer for which he had treated him previously. His advice was to continue taking soda and water, but to take no food. This the patient did, and remained fairly comfortable until about 7 p. m. when the pain, instead of improving as a result of this alkaline therapy, seemed to become worse. His local doctor was called again and felt that his original diagnosis was probably erroneous, and that this was a somewhat atypical appendicitis. He sent the patient to the hospital for operation.

The patient's past history was not important except for the fact that six years previously he had been treated by the Sippy regime for a peptic ulcer, but in recent years he had had very little stomach distress.

Physical Examinations: Patient was lying quietly in bed and the right knee was drawn up. His pulse was 96, temperature 100.4°. White blood count 19,600 with 96 per cent polynuclear and 14 per cent staff cells. There was a general tenderness throughout the abdomen and a slight though definite muscular spasm in right upper quadrant only. The tenderness on deep pressure was more marked on the right than on the left, and seemed to be slightly more in right upper quadrant than elsewhere.

Discussion: In view of the patient's history of peptic ulcer and the point of maximum tenderness being in the right upper quadrant, the diagnosis of perforated peptic ulcer was favored over that of appendicitis, although the absence of collapse, marked tenderness, muscular spasm and the typical grunting respiration seen in perforated ulcer cases made us wonder whether this might not be acute appendicitis in a high location.

Operation: Immediate exploratory laparotomy was done through a right rectus incision. Upon opening the peritoneal cavity a large amount of milky yellowish fluid was encountered, and there seemed to be much more in the lower than the upper abdomen; therefore, the appendix was first explored. It was found inflamed and the tip somewhat edematous. There was, however, no perforation of it; and although it was quite certain that this was not responsible for the marked and complete peritoneal involvement, appendectomy was done. Following this the upper abdomen was explored and no fibrin was encountered, but the omentum was found plastered over the pyloric end of the stomach. When this was removed, a perforation approximately 7 mm. in diameter was discovered in the anterior wall of the stomach near the pylorus. Around this area was a very small amount of fibrin. There were no gross food particles found free in the peritoneal cavity. The perforation was closed with interrupted linen sutures, the omentum sewed to the site of the perforation and the abdomen closed in the usual manner without drainage.

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* Case reported at a meeting of Multnomah County Medical Society, Portland, Ore., April 15, 1936.

Postoperative Course: Postoperative course was uneventful. The temperature returned to normal on the second day. The abdomen was flat and soft. There was no tenderness. The patient was expelling gas by rectum and was asking for food. The temperature remained normal during the rest of his stay in the hospital. The patient was gradually placed on a six meal gastric diet which he took readily. Was out of bed ten days after entering the hospital and left two weeks after he entered. He left the hospital in excellent condition. One month after the operation he reported that he was feeling quite well. Had no stomach distress whatsoever, and was feeling so well that he wanted to go back to work. This was permitted, but he has kept on a six meal gastric diet with modified Sippy regime.

COMMENT

This case is remarkable largely because nineteen hours after the perforation of a gastric ulcer the patient exhibited so few symptoms and signs that it was difficult to be certain about the correct diagnosis. Second, the peritoneal involvement was absolutely complete and there was a tremendous amount of fluid in the abdominal cavity, yet with all this apparent contamination the postoperative course was the smoothest I have ever encountered following a perforated peptic ulcer. There was really less postoperative disturbance than we ordinarily observe after a simple appendectomy.

The only satisfactory explanation I am able to give for this unusually benign course is that the large quantity of alkaline fluid, twelve glasses in all, which this patient took following the perforation, so completely neutralized and diluted the acid gastric juices that the classic symptoms of chemical peritonitis did not ensue in spite of the fact that this ulcer had perforated nineteen hours before the perforation was closed at operation. This conclusion is borne out by the fact that the fluid removed at the operation was found to be actually alkaline in reaction. It was sterile to smear and culture, although there were large numbers of polymorphonuclear leukocytes present in the fluid.

This experience certainly makes the consideration of alkali therapy in perforated peptic ulcer worthy of some thought. In the past we have been in the habit of contradicting anything to be taken by mouth in cases of suspected perforation. In the light of this experience I should not hesitate at any time in a similar case to aspirate stomach contents and wash the stomach with alkaline solution, and to allow it to remain in the stomach. Furthermore, I believe it would be advisable at the time of operation to neutralize the escaped acid gastric secretions by instilling sterile solution of soda bicarbonate into the peritoneal cavity. If we could instill exactly enough just to neutralize the escaped hydrochloric acid, the end products of this reaction would be carbon dioxide, water and sodium chloride, all of which should be entirely harmless in the peritoneal cavity. It would be impossible to know how much soda bicarbonate solution was necessary, therefore, one would expect to instill an excess of this solution. The question then immediately arises whether a weak solution of soda bicarbonate could in any way prove irritating to the peritoneum. Personally I doubt whether it would be irritating, though this point will have to be determined by further laboratory and clinical experimentation.

SUMMARY

A case of perforated gastric ulcer is reported. An unusually benign course was run. The explanation lies in the neutralization of the irritant hydrochloric acid by copious quantities of soda bicarbonate solution injested by the patient. This suggests the possible new principle in the treatment of perforated peptic ulcers, that is, alkaline therapy by mouth prior to operation, and intraabdominal alkaline therapy during the operation, directed towards complete neutralization of the irritant hydrochloric acid.

CONCLUSIONS

This isolated clinical experience is certainly extremely interesting and suggestive. The thoughts herein presented are not in any way conclusive. They must be supported by laboratory demonstration in experimental animals; first, of the innocuousness of soda bicarbonate solution in the peritoneal cavity; and, second, the demonstration of the effective intraperitoneal neutralization of gastric hydrochloric acid by soda bicarbonate solution. If these findings seem to indicate the effectiveness of soda bicarbonate therapy, we would then be justified in applying this principle in the treatment of clinical cases in order to corroborate this one isolated experience.

In making this preliminary report it is hoped that others who may be more advantageously situated for the conduct of laboratory and clinical research may be stimulated to assist in accumulating data in support of or contradicting this principle.

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EDITORIAL

PRESIDENT J. TATE MASON

Few medical men are distinguished by election to the presidency of the American Medical Association. During the year of his incumbency, the President is the outstanding medical man of the profession in this country. Never before has this honor been conferred upon a physician of the Pacific Northwest. After Tate Mason of Seattle was chosen President-elect a year ago, he devoted a large portion of his time during the following six months in contacting the profession in all parts of the country. He labored assiduously in promoting the interests of the American Medical Association. During most of the winter Dr. Mason was confined with illness, which sufficiently improved in the early spring so that he resumed his professional work and had plans for further activities in behalf of our national organization. Early in April he was afflicted with a very unusual form of arterial disease, resulting in the formation of thrombi, one of which made necessary a thigh amputation with later similar involvement of the other leg. Unfortunately this condition prevented his presence at the annual meeting in Kansas City. Nevertheless, precedent was set aside by the House of Delegates, and he was inaugurated in absentia as President of the American Medical Association. This honor is a recognition of his ability and worth by the medical profession of our country, among whom he is known as an accomplished and successful surgeon. The sympathy and good wishes of the whole profession are extended to him during his period of distress and disability. The universal hope is that he may overcome the existing physical handicap and be spared for future usefulness.

THE KANSAS CITY MEETING

The recent meeting of American Medical Association at Kansas City was in point of numbers the largest attended by any in the eighty-seven years of its existence. More than six thousand physicians were registered by Wednesday noon. More than a thousand members of the Woman's Auxiliary were present and registered. Facilities for the meeting were excellent. Hotel accommodations were overcrowded. The scientific and commercial exhibits were well arranged and large crowds were in constant attendance. These exhibits are becoming a leading attraction of the annual sessions.

It is physically impossible for one to keep track of all that is going on, as twelve sections are holding meetings simultaneously. One simply is compelled to look over the program, choose what he desires to attend and pass up the remaining. Fortunately practically all the papers and most of the discussions are published in the *Journal of the American Medical Association.* Only by reading them can one cover the entire program. Considerable part of the activities of the House of Delegates will appear in the *Bulletin of the American Medical Association* so that important matters of interest to the profession will be available to all who wish to review them. No resolutions of a highly controversial nature were introduced, so that the sessions as a rule were conducted in an orderly and businesslike manner.

There was a note of sadness throughout all the sessions of the House, due to the tragic illness of Dr. Mason. Everywhere one heard expressions of regret and sympathy. It was expressed by resolution in the House, by groups in hotel lobbies, on street corners, in meeting halls and wherever men happened to gather and talk. Never in the eighty-seven years of the association had there arisen the problem of deciding what to do in case of the President-elect being unable to be present and inaugurated as President. The point was not specifically covered in the Constitution and By-Laws. From the very outset there could be little doubt as to the ultimate decision. It is a high tribute to Tate Mason that the House of Delegates voted unanimously to seat him as President. The ceremony in which he was inducted into office in absentia was both sad and impressive. It occurred during the public meeting. Brien T. King of Seattle read the message prepared by President-elect Mason, in which he recounted his visits to physicians in all parts of the country, seeking their views on vital medical problems. He declared their hostility to general socialization of medicine and the demand for as great a degree as possible of individualism.

Many distinguished men were on the program that evening, among them being Governor Parks of Missouri and Governor Landon of Kansas. Governor Landon received a great ovation. His remarks, some of which are here quoted, should be of interest to all medical men in America.

"Medicine will not willingly be made the servile instrument of politicians or the instrument of domineering bureaucracy. I predict that the typical American physician and organized medicine as a whole will at no time be ready for any scheme of regimentation, for any system of impersonalized medicine which is totally alien to the best traditions of the American practitioner and of the profession as a whole.

"Down to the present day American medicine has continued to be primarily individualistic. It is chiefly on that basis that it is to be distinguished from medicine in many foreign countries. I know very well the arguments for an extension of the best medical service to all groups of the American people. It is a worthy cause. It is enlisting the attention of the best brains of your profession. I have confidence that you will work it out."

The Pacific Northwest was well represented at the meeting. There were twenty-three registrants from Oregon, thirty-five from Washington and ten from Idaho.

PROGRAM FOR THE ANNUAL MEETING

As the time approaches for the annual meetings of our state organizations, there regularly arises a discussion as to the character of programs which should be prepared. During their earlier days, when more or less isolated from other medical centers, the members of the respective state associations presented the complete programs of papers. Later, when distant cities became more accessible, visitors were selected, usually connected with medical institutions. Within more recent years numerous meetings and lecture courses have been established, featuring exclusively men of ability well known in various sections of the country. The July programs for the respective meetings in Portland and Seattle have received repeated publicity. In the advertising pages of this issue details of these programs will be found. During the year special societies in our cities also offer programs which present prominent individuals distinguished in their respective lines of work.

Considering the array of outside talent scheduled for these many meetings in our cities, the question seems pertinent if the annual meetings of our state organizations might not most profitably be devoted to scientific papers prepared by the members, supplemented by other papers and discussions on live economic and social questions which no man can ignore and which will have a vital influence upon every one's future practice. Even though the agitation concerning socialized medicine has not received as much publicity in recent months as formerly, its consideration will undoubtedly appear before our coming legislative sessions in the form of bills offered by various organizations and interests not connected with the medical profession.

A live question which might well be publicly discussed at the state meetings pertains to the local care of low income workers. Shall the county medical society give its approval of caring for these people by contract practice under the supervision of the society, open to all members who choose to participate with the exclusion of private or group contracts among its membership? Shall the society refuse its approval for this contract form of treating low income workers, at the same time permitting individuals or groups of members to carry lucrative contracts to the exclusion of the general membership? Shall the society combine the two methods, approving this contract work under its supervision for all wishing to participate, at the same time permitting other members to continue their individual contract practice? Shall the society condemn or refuse its approval to all forms of contract work, excluding from its membership anyone participating in this form of practice? All of these methods are advocated or supported by various county societies, each aiming to handle the question according to the best judgment of its own membership. An open discussion of these questions might determine definite methods of procedure, sufficient time being provided for their consideration on the programs of the meetings. These annual state meetings are important for social contacts and promotion of mutual benefit of the members. Any one having in mind a plan which might be for the good of the profession should be entitled in an orderly manner to present his views for suitable consideration.

THE WASHINGTON STATE ASSOCIATION FOR CARE OF CRIPPLED CHILDREN

For many years much attention has been paid in Washington as in other states to rehabilitation of children crippled congenitally or through trauma. This work has been carried on in general as well as special hospitals and in clinics, the patients being limited to below the age of fourteen years. It has been recognized that similar provision should be made for older children, not only for benefiting their physical condition, but also to serve along educational and vocational lines. A committee, functioning under the Washington State Department of Public Welfare, has decided to direct the major portion of its attention and activities to crippled youth between the ages of fourteen and approximately twenty years, without fixing an upper age limit. Early this year, before an appropriation was made available for this work from federal sources, Governor Martin, on solicitation of the committee, set aside a portion of available state funds for this purpose. It was realized that a continuation of effort would be necessary over a long period of years suitably to carry on this work, not subjected to political vicissitudes. This led to the formation of The Washington Society for Care of Crippled Children.

During the winter this work was carried on in eight clinics in different parts of the state, seeking to eliminate those who could afford to employ a private physician, and those urgently in need of necessary care were assigned to certain physicians for treatment. One hundred and fifty children were found to be in need of care, of whom fifty were classified as urgent. The actual care of these patients is the direct responsibility of the orthopedic committee, composed of seven members of the State Medical Association limiting their practice to orthopedics. Those selected are J. F. LeCocq, H. J. Wyckoff, J. C. Brugman, M. C. Lile, of Seattle; H. B. Allison of Tacoma; A. O. Adams of Spokane and D. C. Keyes of Bellingham. This committee will determine matters relating to diagnostic clinics, operations, hospitalization, physical therapy, appliances and aftercare. Fee schedules are based on those of the Department of Labor and Industries.

It is planned to hold diagnostic clinics once or twice a year, at which patients entitled to treatment may be examined. Names and addresses of such patients may be sent directly to the Crippled Children's Section of Department of Public Welfare at Olympia, Mrs. Helen C. Swift, Supervisor of Child Welfare Division of the Department of Public Welfare, or to any county nurse. The principles of federal assistance as well as placing of this activity under the State Welfare Department rather than the Health Department may be debatable questions. But the problem relating to crippling defects continues regardless of politics, and a nonpolitical, nonprofit organization which is activated by high ideals and humanitarian motives will continue to function, and will be able to employ temporary funds and assistance to aid those having physical disabilities to the end that they may become self-supporting and self-respecting citizens.

On May 15 the Board of Trustees of The Washington Association for Care of Crippled Children met and elected the following officers: J. B. Lincoln, President; Chester E. Roberts, Vice-President; Miss Bernice Scroggie, Secretary. The Executive Committee elected at the same time includes these officers together with Miss Olive Kerry, L. A. Williams, Drs. John F. LeCocq and Herbert E. Coe.

THE IDAHO LECTURE COURSE

Last year Idaho State Medical Association departed from the traditional program of state medical association annual meetings and instituted a postgraduate course of lectures with all speakers from outside the state. This year a similar program has been prepared for the meeting at Boise, August 31-September 4. The speakers, all members of the faculty of University of California, are as follows: Langley Porter, Dean; C. Latimer Callander, Associate Clinical Professor of Surgery and Topographical Anatomy; George K. Rhodes, Associate Clinical Professor of Surgery; Gordon E. Hein, Associate Professor of Medicine; Chauncey D. Leake, Professor of Pharmacology; Howard E. Ruggles, Clinical Professor of Roentgenology. The program will present a series of symposia covering (1) industrial surgery, (2) infections, (3) intestinal tract, (4) anesthetics, (5) trauma. Details of the program will be published in subsequent issues.

MEDICAL NOTES

North Pacific Pediatric Society will hold a meeting in conjunction with the pediatric section of Canadian Medical Association at Victoria, June 24-25. There will be a morning and afternoon session on Wednesday and a morning session on Thursday. Papers will be presented by W. E. M. Mitchell, R. W. Hunter and Glenn Simpson of Victoria; N. Kemp, K. J. Haig, E. J. Curtis, G. E. Lamont, R. P. Kinsman and C. E. Dolman of Vancouver; Ira Manville, invited guest, University of Oregon, Portland; Herbert Coe, Seattle; H. E. Price of Calgary, Alta.; U. J. Gareau of Regina. Papers cover a wide range of interest to pediatricians.

OREGON

Basic Science Examination. The next basic science examination will be held at Agriculture Hall, Oregon State College, Corvallis, July 18, beginning at 8:30 a.m. Subjects for examination will be anatomy, physiology, pathology, chemistry and hygiene. Application blanks and general instructions may be obtained from C. D. Byrne, Secretary, State Board of Higher Education, Eugene, Oregon. Application blanks must be filed not later than noon, July 1.

Basic Science Reciprocity. Reciprocity, on bases of examination only, has been established with basic science examining boards of Minnesota, Wisconsin and Iowa. Oregon basic science examining committee will issue certificates of proficiency in basic science to applicants presenting evidence of having passed the basic science examination of any of the above mentioned states, provided they fulfill regulations of the Oregon board.

Chosen President-Elect. At the meeting of Medical Women's National Association in Kansas City last month, Dr. Mabel M. Akin of Portland was named as president-elect. Beside being a well known physician, she is president of Portland Medical Women's Club and a director of North Pacific region of Medical Women's National Association. She is also connected with civic and social affairs.

Hospital Reopened. Last month Forest Grove Hospital, which had been closed for some time, was reopened. The institution has been renovated and numerous improvements installed. Under the superintendency of Mrs. George Hunger, R.N., a staff of nurses and other employees will offer service to the profession.

David E. Baird, who has been located for the past year in Powers, has moved to Port Orford where he will be associated in hospital work with W. A. Cartwright of Gold Beach and E. F. Lucas of Bandon.

Elected to the Board. At the annual meeting of American Society of Clinical Pathologists H. H. Foskett of Portland was elected a member of the Board of Registry.

WASHINGTON

New Hospital Opened. The new hospital at Nespelem on the Colville Indian agency for the care of Colville and Spokane Indians has been opened for the reception of patients. All types of cases will be admitted, special attention being given to surgery. Also obstetric cases will receive special consideration.

New Wing for Hospital. A four-story wing for Olympia Hospital, Bremerton, is being constructed at an expenditure of about $40,000. It will occupy floor space, 35x65 feet. It will contain an operating room with modern equipment, roentgen ray room and maternity room with nursery. The building will be of reinforced concrete, surfaced with yellow stucco.

Washington State Hospital Association held its annual meeting at Seattle, May 2. Mrs. Cecile T. Spry of Everett was elected president, succeeding Karl H. Van Norman of Seattle. The meeting was held at Providence Hospital with an interesting program of speakers.

Provision for Indigent Children. The death of a Tacoma financier, H. A. Rust, leaving an estate estimated at $600,000, provides that after the youngest grandchild becomes of age the net income from half the estate shall be used for a free ward for indigent children at Tacoma General Hospital.

Appropriation for County Clinic. Grays Harbor county commissioners have recently appropriated $600 for the purpose of setting up a clinic for treatment of venereal diseases. This is an emergency procedure in conjunction with the state department of welfare.

Change of Health Officer. The city commissioners of Olympia recently received the resignation of H. D. Lillibridge as health officer and in his place appointed Beverly Holland, recently surgeon at a CCC camp. He will serve as Thurston county health officer as well as city health officer for Olympia. After graduating from the medical department of University of Texas, he served as interne at Tacoma General Hospital.

Elected Vice-President. At the annual meeting in Kansas City last month of Medical Women's National Association, Dr. Lillian Irwin of Seattle was elected third vice-president.

J. M. Nelson of Spokane, who has served two terms as deputy coroner, has resigned. He has accepted a position on the staff of University of Michigan Medical School at Ann Arbor from which he graduated. After serving as resident surgeon in Victoria Hospital, Montreal, he located for practice in Spokane.

R. W. Kite has located for practice at Port Townsend. Graduating from University of Kansas Medical School, he served as interne in Seattle hospitals and recently practiced in Spokane.

T. G. Sutherland, who has recently practiced in Seattle, has located at Auburn. He formerly operated a hospital at Cordova, Alaska.

R. L. Bailey, recently of Tacoma, has located for practice at Waitsburg. He is a graduate of University of Texas Medical School.

Wedding. Thomas A. Angland of Yakima and Miss Betty Brush of that city were married April 25. The bride is a daughter of Dr. Frederick Brush.

IDAHO

Licenses Issued. After medical examination at Boise, April 7, the license bureau issued certificates to practice to F. W. Durose of Wallace, H. E. Patton of St. Maries, W. A. Rulien of Wendell and G. R. Suckow of Boise. Licenses to practice by reciprocity were at the same time issued to eleven other physicians.

Medical Society Suspends. On April 7 the Upper Snake River Medical Society voted to cease existence, when a request was made that the state association take up their charter. At the same time they requested permission to join the Pocatello society, which request was granted and the two societies were united on May 7.

Resignation of Health Officer. J. M. Lyle of Lewiston has resigned as director of county-city-school health unit. J. D. Dunshee, state medical adviser of Boise, states that another health officer will soon be appointed. Dr. Lyle will continue in office until his successor is chosen.

Randolph McCalla has returned to Boise for practice after an absence of a number of years. After graduating from medical department of Columbia University in 1924, he practiced for a time in Boise in association with his father. For a number of years he was on the faculty of University of California Medical School, then spent several years in the Hawaiian Islands.

Appointed County Coroner. H. H. Greenwood of Coeur d'Alene was last month appointed coroner by the board of county commissioners. He succeeds J. J. Herrington, recently deceased.

Head Assistant Appointed. G. D. C. Thompson of Gallipolis, Ohio, has been appointed by medical director J. D. Dunshee of Boise as head assistant in charge of the maternal, child health and crippled children bureau of Idaho.

Ben C. Eisenberg has located for practice at Pocatello. He is a graduate of Western Reserve University. For the past two years he has served as district surgeon for C.C.C. camps in Washington, California and Idaho.

A. J. White of Portland has located at Genesee, where he will succeed to the practice of J. E. Baldeck who has moved to Lewiston.

Reed Rich has located for practice at Montpelier. He is a brother of S. H. Rich of Paris.

OBITUARIES

Dr. Howard M. Shaw of Ashland, Ore., died September 12, 1935, aged 65 years. He was born in Berwick, Nova Scotia, in 1870. When eighteen years of age, he began teaching school, which vocation he followed for two years. He then took one year at Arcadia University, Wolfsville, N. S. In 1891 he matriculated at McGill University, from which institution he graduated in 1895 with the degree of M.D. C.M. At the end of his college course he became house surgeon at Victoria General Hospital, Halifax, N. S. He spent a short time at Neihart, Montana, where he was surgeon for a silver mining company. In 1897 he located in Fossil, Ore., where he practiced for five years. About this time he moved to Ashland, Ore. Before the World War he went to Vienna, intending to take a two year course in eye, ear, nose and throat work, but owing to war developments, remained only one year; he returned to the United States and continued the special work in New York and Chicago. He was a man of integrity and worth, ethical in all his professional contacts, pleasing personality, kind, sympathetic and helpful to those who came to him for relief; also took an active interest in civic affairs.

Dr. George T. Doolittle of Spokane, Wash., died May 2, after a long illness, aged 76 years. He was born in New Haven, Conn., in 1860. After obtaining his medical degree from Yale University Medical School in 1884, he studied in Austria and Germany. He located for practice in New Haven in 1886. He moved to Spokane for practice in 1889. He served as a member of the State Board of Health for three years and for two years he was city health officer. He served a term in the state legislature in 1905 and was also a member of the city council for two years. He was one of the best known and respected physicians of the city. He retired from active practice sixteen years ago.

Dr. Melbourne Clements of Seattle, Wash., died April 26 after six months illness, aged 52 years. He was born at Uniontown, Ky., in 1884. He graduated from Rush Medical School of University of Chicago in 1910. During the war he served in the Naval Medical Corps, being chief officer of the transport Wilhelmina. He was an accomplished musician, being a graduate of the Conservatory of Music at Cincinnati, Ohio. He was recognized as a violinist of note. Formerly he practiced in Chicago and moved to Seattle where he has practiced during the past seven years.

Dr. Ernest L. Bickford of Seattle, Wash., died April 27 at U. S. Veterans Hospital, Salt Lake, aged 70 years. He was taken suddenly ill while on an automobile trip. He was born in Westford, Minn., in 1866. He received his medical degree from University of Missouri Medical School in 1890. Then he located at Fairhaven, Wash., for a short time, after which he practiced for five years at Denver, and then was located in Seattle till 1908, when he spent a year in Vienna. In 1911 he practiced for about a year in Reno, Nev., when he located again in Seattle. In 1917 he joined U. S. Army, going to France as Captain in 1918. In 1919 he returned to Seattle, retiring in 1935.

Dr. J. J. Herrington of Worley, Idaho, died in a Spokane hospital May 7 from pneumonia after an illness of several months. He obtained his medical degree from National University of Arts and Sciences, Medical Department, St. Louis, in 1893. He had practiced in Worley for the past fifteen years. He had been editor of the Worley Go-Getter for some time previous to his recent illness.

Dr. Frank M. Bell of Portland, Ore., died May 7, aged 81 years. He obtained his medical degree from Miami Medical College, Cincinnati, in 1883. For a number of years he practiced at Kelso, Wash., retiring from active practice when he moved to Portland.

REPORTS OF SOCIETY MEETINGS

OREGON

SOUTHERN OREGON MEDICAL SOCIETY

Pres., E. D. Johnson; Secy., E. A. Woods

The forty-fifth annual meeting of Southern Oregon Medical Society was held in Elks Temple Klamath Falls, Saturday, May 2. After registration and payment of dues the meeting was called to order by President E. D. Johnson of Klamath Falls. Minutes of the preceding meeting were then read and approved.

The following applications for membership were turned over to the board of censors for approval: Geo. I. Wright, James M. Hilton, John M. Adams, Andrew A. Soule, Ralph W. Stearns, Chas. V. Rugh, and E. Dietsche. The committee acted favorably and the applicants were voted into the Society.

An invitation from the doctors of Roseburg to hold the 1937 meeting in their city was accepted.

Election of officers followed. E. B. Stewart of Roseburg was elected president; B. G. Bailey of Grants Pass, vice-president; E. A. Woods of Ashland, secretary-treasurer; F. C. Adams of Klamath Falls, a member of the Board of Censors to serve three years; E. D. Johnson, delegate to the State convention, with Harvey A. Woods, Ashland, alternate.

President Johnson's address was then read, his topic being "Ancient Art of Prescription Writing." He hit nearly all of us in this paper, the prescribing of proprietary drugs becoming too common. This paper will be sent to Northwest Medicine for publication. We should all read it.

Under the head of Memoriam, three doctors have passed away since our last meeting: G. E. Low, Grants Pass; H. M. Shaw, Ashland; and James F. Leslie, Marshfield.

G. W. Gregg read a fitting obituary for Dr. Shaw. The doctor who expected to read an obituary for Dr. Low did not attend the meeting or send his paper, so this will be read at the next meeting. A clipping from Northwest Medicine giving a brief obituary for Dr. Leslie was read by the secretary. Flowers were sent to the funeral of both H. M. Shaw and G. E. Low. None were sent to the funeral of Dr. Leslie, as it was over by the time his death was learned by the secretary.

The first scientific paper of the program was by Edward C. Bull, San Francisco, "Fracture of the Tibia and Fibula Involving the Ankle Joint," demonstrated by lantern slides. Discussion was opened by E. D. Lamb, Klamath Falls and followed by Dr. Aiken of Portland and others. This was a most practical subject and was thoroughly covered by Dr. Bull.

Luncheon was at Willard Hotel, where all enjoyed the hospitality of the Klamath and Lake County Medical Society.

After luncheon the scientific program was resumed. Le Roy H. Briggs, San Francisco, gave a "Discussion of Nonpulmonary Tuberculosis," demonstrated by lantern slides and a specimen of tuberculosis of the pericardium. This paper was then opened for discussion. Much was learned about tuberculosis of the serous membranes lining the peritoneal cavity, the pleural cavity and the pericardial space.

During the business part of the meeting D. M. Brower, being the only charter member, was made an honorary member by vote. A. C. Seely, Roseburg, was appointed by the chair to write a few lines in honor of Dr. Brower.

G. A. Massey, president of the State Society, made a few remarks. Thomas Watts, president-elect of the State Medical Society, was called on for a few words.

The Ladies Auxiliary held its meeting at the Town Club, with the president of the State Auxiliary, Mrs. W. F. Patrick, present. Chas. T. Sweeney was asked to address the ladies. He chose for his subject "The Real Martyrs in Medicine, the Doctors' Wives."

This brought to a close one of the most successful meetings in the history of Southern Oregon Medical Society. The State Medical Council invited all the doctors to attend its meeting at the Willard Hotel.

Before adjournment a rising vote of thanks was given Drs. Bull and Briggs for their efforts in bringing about such a successful meeting. Thanks were also voted to Klamath Elks for their generosity in allowing the Southern Oregon Medical Society the use of their temple.

The meeting adjourned to meet in Roseburg in May, 1937.

WASHINGTON

COWLITZ COUNTY MEDICAL SOCIETY

Pres., J. W. Henderson; Secty., A. F. Birbeck

Cowlitz County Medical Society held a meeting at the Hotel Monticello, Longview, May 12. Howard B. Kellogg of Seattle gave an interesting paper on "Diagnosis and Treatment of Thromboangiitis Obliterans." Also, an interesting paper was given by a chemist, Harry Mackler, on "Irritating Properties of Smoking Tobaccos."

The cancer committee is preparing a program for the public to be given sometime the latter part of June to discuss the early diagnosis and treatment of various types of cancer. At this meeting there will be several reels shown which come through the Neoplastic Committee of Washington State Medical Association.

Henry L. Skinner, a recent graduate of the Northwestern University, was a guest at this meeting. He is now in charge of the C.C.C. camp near Cathlamet.

This was the last regular meeting of the Society until September.

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

A regular meeting of King County Medical Society was held in Auditorium of Medical-Dental Building, Seattle, May 4, President Forbes presiding. Minutes of the meeting of April 20 were read and approved. Announcement was made of discontinuing meetings after June 1 until September 21.

Announcement was made of clinical demonstrations each Tuesday noon at 12:30 at Harborview Hall. Notice of special meeting for May 11 was announced to consider the county medical society taking over ownership of Seattle Medical Library and medical telephone exchange.

B. F. Bruenner and Edward F. Case were elected to membership. Applications were received from Bertrand Fitzmaurice, C. H. Weir, and J. W. Youwell.

J. K. Holloway read a paper on "Hydrocele of the Canal of Nuck." The anatomy and pathology of the condition were described. Differentiation from inguinal hernia was emphasized. Technic of operative procedure was given. The paper was discussed by Drs. Hagyard, Fiset, Lamson, Dudley and Kelton.

K. K. Sherwood read a paper, "The Natural Course of Posttraumatic and Gonorrheal Arthritis." Details of diagnosis were mentioned and description of the administration of arthritic vaccine. General management and prognosis were detailed.

W. Ray Jones discussed "Venereal Disease Control in Washington—The State Health Department Plan." He recommended more careful diagnosis and treatment of the venereal diseases, outlining procedures to be followed. If this is not done, the state is likely to take over the care of these patients.

PIERCE COUNTY MEDICAL SOCIETY

Pres., J. R. Turner; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, May 12, J. R. Turner presiding. Minutes of the previous meeting were read and approved.

W. Ray Jones, of Seattle, Chairman of the Social Hygiene Committee of Washington State Medical Association, who has recently been appointed by the State Director of Health to inaugurate a program for the control of venereal disease, presented a graphic display and gave a talk which was a plea that the physician maintain control of venereal patients and stressed the dangers of the development of venereal clinics.

E. W. Steele, Medical Adviser of the Department of Labor and Industries, introduced Dr. Leavitt, who is now assistant in the department. Dr. Steele then outlined the relations of the department to the medical profession and mentioned several matters that he thought would help to maintain a better understanding between the medical profession and his department.

C. F. Engels presented a moving picture of three reels, produced by Dr. Lundy, of Chicago, under the auspices of the American Medical Association. This was a graphic study of the physiologic and mechanical action of the heart, demonstrating the interpretation of the electrocardiogram.

J. R. Turner announced a radio program to be given over KVI at 8:15 p.m. on May 14 by the Woman's Auxiliary.

Election of officers for the ensuing year resulted as follows: President, A. W. Howe; Vice-President, J. W. Gullikson; Secretary-Treasurer, W. B. Penney.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., F. W. Baugh; Secty., Harold Hopke

Skagit County Medical Society held a meeting at the Country Club at Mt. Vernon, April 27, following a dinner. President F. W. Baugh presided. Addresses were delivered by Walter B. Seelye, Paul C. Gunby and W. Ray Jones of Seattle.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., O. R. Allen; Secty., E. J. Van Buskirk

Snohomish County Medical Society held a meeting in Medical-Dental Auditorium, Everett, May 7, President Allen presiding. John D. Fuller of the State Department of Health presented the plan of the department for the establishment of a Demonstration Area in the southern part of the county. Walter Kelton of Seattle spoke on "Clavicle Crutch Splint" and Herbert W. Johnson of Everett gave a paper on "Injection Treatment of Hernia." General discussion followed the reading of the papers.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johannesson

The regular monthly meeting of Walla Walla Valley Medical Society was held May 14 at United States Veterans' Hospital, Walla Walla, with forty-eight physicians present. After dinner the society was called to order by Vice-president V. G. Backman of Pasco. A short business session was held. Application for membership of E. E. Hardy of Pasco was presented and acted upon favorably. W. B. Swackhammer, manager and medical officer in charge of the Veterans' Hospital, expressed his appreciation for so many members of the society coming to the hospital to attend the meeting.

A motion picture film, "Diagnosis of Urologic Conditions," was exceptionally clear and instructive, covering theoretical and practical discussion of the intravenous urography, retrograde pyelography, the mechanism of excretion of urographic contrast media, the technic of cystoscopy and ureteral catheterization, interpretation of urograms, concluding with a case of urologic surgery illustrating nephrectomy with diagnosis corroborated by presentation of a pathologic specimen removed at operation. Discussion followed by F. C. Robinson, Dr. Tapp and C. J. Johannesson.

John E. Nelson of Seattle, chairman of the Tuberculosis Committee of Washington State Medical Association, presented a view of "Tuberculosis of the Lungs," reiterating the importance of history, physical examination and laboratory work with special reference to sputum analysis and Mantoux skin tests and roentgen examination.

Howard L. Hull of Yakima reviewed "Treatment of Tuberculosis," divided into symptomatic treatment and collapse therapy, of which he advised more frequent use. Altitude and climate have relatively little influence on the cure of tuberculosis, rest and systematic treatment being of greater importance. Discussion followed by Roscoe W. Smith of Blue Mountain Sanatorium. G. C. Daniel and H. Axline of the Veterans' Hospital commented on both papers.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross; Secty., H. L. Hull

The regular monthly meeting of Yakima County Medical Society was held in Yakima May 11, with the usual dinner at 6:30 p.m. preceding the meeting. Thirty members and one visiting physician were present.

The scientific program was on the subject of mental health and was presented by W. N. Keller of Steilacoom and A. C. Stewart of Tacoma.

IDAHO

SOUTH SIDE MEDICAL SOCIETY

Pres., C. A. Weaver; Secty., C. D. Beymer

South Side Medical Society held a meeting at Twin Falls, May 8. There was an afternoon session in Legion Memorial Hall and an evening session following dinner at Park Hotel. Clinical demonstrations were given by Guy V. Strohm of Portland, Clinical Professor of Urology at the medical school; Ralph T. Richards of Salt Lake Clinic and L. D. S. hospital; Dr. Lewis of Portland, Clinical Professor of Medicine at the medical school. Addresses were also given by Raymond E. Watkins, head of department of gynecology and Richard B. Dillehunt, Dean and Clinical Professor of Surgery University of Oregon Medical School.

SOUTHWEST IDAHO MEDICAL SOCIETY

Pres., O. F. Swindell; Secty., L. F. West

Southwest Idaho Medical Society held a meeting at Boise May 12, at Owyhee Hotel. The scientific program consisted of an address by George W. Pierce of San Francisco, well known plastic surgeon, on "Problems of Reconstruction Surgery." He explained that the layman usually regards plastic surgery as "face lifting," while it should properly be called "reconstruction surgery." V. E. Fisher. Ph.D., former assistant professor of psychology and director of mental clinic, New York University, presented a paper on "Basic Psychologic Factors in Nervous and Mental Disorders." Following the program was a dinner dance for physicians and wives.

RESULTS OBTAINED BY THE USE OF FEVER THERAPY IN THREE TYPES OF CASES USUALLY REFRACTORY TO OTHER TYPES OF TREATMENT. M. Hill Metz, Dallas, Texas (*Journal A. M. A.*, May 9, 1936), treated six patients with the most severe type of Sydenham's chorea with fever therapy by means of the Kettering hypertherm. All were girls and their ages ranged from 8 to 15 years. They had been kept at complete bed rest and had been treated with all the ordinary measures and with much sedation but the condition remained of the most violent type, requiring continuous restraints to prevent self injury. All were given from three to five treatments at weekly intervals, each treatment consisting of from three to four hours, with temperature between 106 and 107 F. Shortly after the first treatment in each case there were fewer choreiform movements, and the patients rested with fewer sedatives. Improvement was slow but definite, and in from two to four weeks after the last treatment all involuntary movements had disappeared and the patients ate and slept normally. In only two cases was there the suggestion of choreiform movements under the stress of excitement. These cases have been followed for from two to eight months, and there has been no recurrence of symptoms in any. Excellent results were also obtained in two severe cases of gonorrheal ophthalmia in May, 1935. Eight cases of severe intractable bronchial asthma were also treated with fever therapy by means of the Kettering hypertherm. Multiple sensitivities to bacteria, foods and pollens were present in each case. All patients had had severe attacks of status asthmaticus at repeated intervals, oxygen therapy having to be administered. The relief offered has been complete in three cases, lasting from two to six months. In four cases followed for from one to twelve months there has been only occasional mild recurrence, and in one case there was little or no improvement. No patient received more than four treatments at weekly intervals, each one consisting of from three to five hours of fever between 106 and 107 F. The author does not recommend this type of therapy as effecting consistent cure or even as a means of alleviating all bronchial asthma but believes that it is worth trying in severe asthmatic cases that respond to no other form of therapy.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

Portland, Ore., May 20, 1936.

The May meeting of the Council of Oregon State Medical Society was held May 2 at Klamath Falls, in conjunction with the annual meeting of Southern Oregon Medical Society. The program which covered only one day consisted of two very excellent papers by LeRoy H. Briggs and Edward C. Bull of San Francisco. The subjects of fractures about the ankle and nonpulmonary tuberculosis were well handled and those in attendance had the pleasure of meeting two outstanding men. The attendance at the meeting was quite large and many of the members attended the meeting of the council.

The Council voted that their facilities, including the services of the Executive Secretary, be at the disposal of Pacific Northwest Medical Association Committees on Arrangements for their fifteenth annual session which will be held in Portland, July 8-11. The excellent program made up of twelve pre-eminent speakers, giving thirty-six papers, will form a presentation which will contain something for every practitioner of medicine, general practitioner or any of the specialties.

A letter was read notifying the society of the attempt being made to promote legislation in some of the eastern cities which would force ophthalmologists to dispense glasses or cease the practice of refraction. The absurdity, of course, is manifest. The matter was referred to the Committee on Public Policy.

The matter of securing Federal income tax exemptions for physicians was presented in a letter. It was felt by the author of the letter that physicians charitably contribute hundreds of hours annually of their specialized training and, therefore, should be given some consideration, at least as much as is given state employees who give nothing to the general welfare.

A letter was read from the Union States Life Insurance Company regarding the weekly radio program on health problems which they intend to sponsor, talks to be made by physicians selected by the Society, who will serve without compensation, on subjects with which they are especially conversant, the addresses having been approved by the state society. This was referred to the Executive Committee.

A letter from the Multnomah County Medical Society was read requesting that the state society through its representative, John H. Fitzgibbon, ask the American Medical Association to send an official representative, preferably Morris Fishbein, to address a meeting of the society preferably in May or June. Dr. Fitzgibbon was so instructed.

A letter was read from the Oregon State Industrial Accident Commission explaining rulings of the Washington Commission in cases coming under the Washington law but cared for in Oregon. This communication indicates that, in order to be recognized by the Washington Commission, it is compulsory that the injured workman be given preliminary treatment by a Washington physician and report to the Washington Commission while in Washington. Then, without waiting for word from the Washington Commission, he may be transferred to an Oregon physician by the Washington physician who must notify the Washington Commission of such transfer. When the above procedures are carried out as indicated, the Washington Commission will recognize the bills of the Oregon physician, provided the workman is entitled to the benefits of the law in the state of Washington.

The Council approved a resolution to the House of Delegates of the A.M.A. urging them "to go on record as opposing the granting by the Federal Communications Commission of a single short-wave frequency to any commercial concern for the purpose of emergency communications with physicians, and as favoring the allocation of frequencies for this purpose to individual local stations, and this only following the recommendations of the local medical society in the city concerned."

A. G. Bettman, *Editor.*

WOMAN'S AUXILIARY

Portland, Ore., May 25, 1936.

Mrs. William F. Patrick of Portland, president of the Woman's Auxiliary to Oregon State Medical Society, has been making her official visits to member auxiliaries in several parts of the state this spring. On February 28 the Benton County Auxiliary arranged a luncheon meeting in her honor at the Hotel Benton in Corvallis, with its president, Mrs. M. J. Bosworth, in charge. Sharing honors with the state president for this affair were Mrs. George H. Bendshadler, first vice-president and chairman of organization; Mrs. Warren C. Hunter, exhibits chairman and Mrs. Joseph A. Pettit, public relations chairman, all of Portland. The Benton County Auxiliary is pointing with pride this year to a commendable record of activity which has included a public relations tea, a liberal distribution of health literature, an extensive program of publicity for the American Medical Association's radio broadcasts and the preparation of papers for their meetings on new developments in medicine and on radio advertising of patent medicines.

The Polk-Yamhill-Marion County Auxiliary entertained Mrs. Patrick and several of her officers on March 10 at a buffet dinner at the home of Mrs. L. O. Clement. Accompanying Mrs. Patrick on this visit were Mrs. John G. Abele, program chairman; Mrs. Pettit, Mrs. Hunter, Mrs. E. Merle Taylor, corresponding secretary, all of Portland. Mrs. Patrick paid high tribute at this meeting to the women of the tri-county auxiliary for their active interest in the debates on state medicine held during the winter in the Salem high schools, at Albany college and at Willamette University. Auxiliary members attended the debates and kept a record of all the decisions. They also supplied the debaters with literature of the American Medical Association. In appreciation of its work, Mrs. Patrick presented the auxiliary with a copy of Muenthe's San Michael for its lending library.

On April 30, Mrs. Patrick, Mrs. Pettit, Mrs. Arthur C. Jones, and Mrs. Arthur J. McLean, members of her board, were dinner guests of the Lane County Auxiliary in Eugene. The following day they were guests of the Jackson County Auxiliary at meetings in both Ashland and Medford; at a luncheon at the Town Club and at a dinner at the home of the county president, Mrs. R. W. Sletter in Medford.

The same week-end Mrs. Patrick and her officers attended a meeting of the Klamath-Lake County Auxiliary, held in Klamath Falls in conjunction with the annual meeting of the Southern Oregon Medical Society, and were guests at tea at the home of Mrs. E. D. Lamb, president-elect of the state auxiliary. On Sunday, May 3, the state president and her board members were guests of a group of physicians' wives in Bend, to discuss with them the possible formation of an auxiliary there. In their honor, the Bend women arranged an attractive breakfast meeting at the Pilot Butte inn.

Mrs. Patrick will visit the Clackamas-Tillamook Auxiliary and the Multnomah County Auxiliary later in May. She also will visit at The Dalles to assist the physicians' wives in outlining plans for the annual meeting to be held there in September.

At Mrs. Patrick's suggestion, Mrs. Joseph A. Pettit, chairman of public relations, sent out letters recently to presidents of other women's organizations, notifying them that a wealth of health literature was available for their use upon application to the medical society auxiliary; that speakers upon health could be obtained through the auxiliary for health education programs in clubs and that monthly schedules of radio programs arranged by the American Medical Association would be sent to them upon request.

Mrs. Raymond T. Kaupp.
Chairman of Press and Publicity.

WASHINGTON

CHANGES IN BY-LAWS

Yakima, Wash., May 28, 1936.

To Washington State Medical Association: My message to you this month has to do mainly with the proposed changes in our By-laws. As you undoubtedly know, these have been in force for many years, with an occasional amendment but with no correlation or assembling of the material. This revision has been contemplated for several years, but until two years ago no active work had been done to correct the defects.

This past year a committee, composed of J. E. Bittner, Jr., C. E. Watts and Carroll Smith, has had charge of this revision of the By-laws. At the meeting of the Trustees, May 24, they presented their final draft of the changes. It was studied by the Trustees and the proposed changes were recommended as amended. They are now being assembled and printed, and in the next few days copies will be sent to each Delegate. It is urged that the Delegates familiarize themselves with the changes and additions and present them to the component societies throughout the state, so that final action may be taken at the annual meeting in September.

I hope each society will study these proposed changes and if satisfactory, instruct your Delegates to accept them. If you are not satisfied with them, present your own changes so that they may be taken up at our annual meeting and be disposed of this year. At present our handbook of By-laws is composed mainly of amendments and these changes are felt to be necessary.

This committee on the revision has spent a great amount of time and hard work in assembling this material for you and they have attempted to present for your approval an up-to-date set of By-laws which they hope you will be ready to act upon. The Board of Governors has also revised that part affecting our Defense Fund, and it will be included in the proposed changes.

Don't forget the dates of our annual meeting, August 31-September 2. Dan Houston and his cohorts, consisting of Herbert Lynch and his committee, are promising one of the greatest golf tournaments ever staged in our Association. The Program Committee has nearly finished its arrangements and I believe they can assure you a program of superexcellence.

And just another word about the election in November. Have you selected your legislators from your districts? Recent convention reports in politics certainly behoove our Association to be awake politically for the next few months. Anything may happen. Look 'em over.

D. F. Bice, *President*.

BOOK REVIEWS

Parenteral Therapy. A Ready Reference Manual of Extra-Oral Medication for Physicians, Dentists, Pharmacists, Chemists, Biologists, Nurses, Medical Students and Veterinarians. By Walton Forest Dutton, M.D., Formerly Medical Director, Polyclinic and Medico-Chirurgical Hospitals Graduate School of Medicine, University of Pennsylvania, etc. And George Burt Lake, M.D., Editor, Clinical Medicine and Surgery, etc. Illustrated with 90 Halftones and Line Engravings. 376 pp. $7.50. Charles C. Thomas, Springfield, Ill., and Baltimore, 1936.

Throughout this work the authors have adherred strictly to their original plan and have made no attempt to enter into the field of controversial medicine. Under each subject, standard methods of procedure are given in a sufficiently clear and detailed manner to make them readily available for use.

The field of anesthesia is described briefly, but contains a summary of the various methods. It is of particular interest, especially in this part of the country, to notice the authors maintain that spinal anesthesia should never be used as a routine procedure. They state: "Spinal anesthesia should be reserved exclusively for conditions where other forms of anesthesia are positively contraindicated."

Alcoholic injections, the injection treatment of varicose veins and of hemorrhoids, and injections for the cure of hernia are each given separate descriptions and Part I closes with consideration of the use of drugs by inhalation and their application in ionic therapy. Part II comprises what is called a "Therapeutic Index." This contains a fairly extensive list of the diseases most commonly met with, together with suggested remedies.

In Part III is found a description of drugs recommended in the previous chapter, where they were merely catalogued and not described. Many recent preparations are included in this section and the material cited suggests that the authors relied greatly on data furnished by manufacturers for the facts presented. This portion of the book, covering forty-three pages, makes readily available many of the newer drugs which are being used a great deal and a description of which is not to be found in the ordinary literature, including uses and dosage of each. The ground covered in this book is extensive and necessarily brief and even categorical in treatment. However, selections made of possible material is admirable. The book is well illustrated and should be a valuable addition to the library of those interested in such subjects. McClure.

Medical Mycology. Fungous Diseases of Men and Other Mammals. By Carroll William Dodge, Ph.D., Mycologist, Missouri Botanical Garden, St. Louis, etc. Illustrated. 900 pp. $10.00. The C. V. Mosby Company, St. Louis, 1935.

It is seldom that a volume by a single author in any field can be considered as monumental, yet no other term can apply to this very complete and detailed study of pathogenic fungi. In the preface the author states that "for the first time in this field a relatively complete and accurate bibliography of existing literature is presented." This statement is the key to the purpose of the volume. It indeed seems to be written around this tremendous compilation of literature. The extent of the author's research may be judged by the fact that out of nine hundred pages in the volume, one hundred sixty are given over to bibliography.

The first six chapters consider fundamentals regarding fungi in general, including morphology, physiology, classification, nomenclature and laboratory methods. In the remainder of the book various groups are discussed in considerable detail. The largest amount of space is given to the chapter on trichophytoneae, in which there is considerable clinical discussion of the lesions produced. This one chapter and that discussing eremascaceae imperfectae are almost the only portions of the book in which clinical lesions, their diagnoses and therapy are discussed. The larger part of the volume takes up in an orderly and well arranged fashion the detailed study of each fungus which has been reported in the literature as pathologic. Complete descriptions, cultural characteristics and other means of identification are usually given. This volume represents careful and painstaking work on the part of the author for more than ten years, and should serve as the foundation for literature on the subject for many years. It will be quite indispensable as reference material. Hartley.

Medical Papers. Dedicated to Henry Asbury Christian, Physician and Teacher. From his Present and Past Associates and House Officers at Peter Bent Brigham Hospital, Boston, Mass. In Honor of his Sixtieth Birthday, Feb. 17, 1936. 1,000 pp. Waverly Press, Inc., Baltimore, 1936.

This volume contains one hundred and three papers on a variety of medical subjects, by many well known and outstanding clinicians. As it is manifestly impossible to review this mass of miscellaneous material, and as the object of the book is to honor Christian, we may fitly confine our remarks to the man and physician, Henry A. Christian. He comes from the best early American stock on both sides of the family. His father, a southern banker, died at 83, while his mother is living at the ripe age of 91. Oliver Wendell Holmes used to say that, to achieve longevity, one must first select long-lived progenitors. Christian showed his usual acumen in this respect, and we may, therefore, expect from him many more years of distinguished, professional productivity.

Virginia born, graduated at its university, he received his M.D. degree from Hopkins at the age of twenty-four. He thus came under the influence of its famous teachers of that day—Osler, Welsh, Barker, Mall and Halsted—the secret of success in medicine. His future distinction in medicine was built on five years of research in pathology under Mallory and Councilman in Boston and Grawitz in Greifswald. In this he outdid Osler, who gave himself chiefly to deadhouse gross pathology. Again, like Osler, he became a monk-like medical devotee in consecrating all his working hours for twenty years to Aesculapius until he married at forty-five. It is indeed doubtful if any man could attain the eminence of Osler and Christian without this absolute devotion of self to the jealous god of medicine.

As private assistant to the great Fitz of Boston, Christian soon became instructor and later assistant professor of medicine at Harvard Medical School. At thirty-two years of age, with Fitz retiring as Professor of Physic at Harvard, Christian, summoned to appear before President Eliot, was offered the position of Dean of the Harvard Medical School. So bitter was his disappointment at being given this executive position that he declined the honor, explaining that his interest lay in clinical medicine. Eliot, not at all disturbed by this announcement, went on to say that he thought Christian capable of both teaching clinical medicine and of administration, adding, "and so I am inviting you to become Dean of the Medical School and Hersey Professor of the Theory and Practice of Physic," an extraordinary honor bestowed upon a medical man of thirty-two.

Eliot's remarkable wisdom and judgment were amply confirmed. Christian has been an illustrious executive in the unique management of the Medical Department of Brigham Hospital for twenty-three years and an unequalled teacher and trainer of his many internes, so that all have been successful in practice and a large proportion are themselves teachers of medicine throughout our land. Eminent as a great medical teacher and executive, known throughout the world for work in medical research, Christian is most widely recognized by his writings, especially by the leading medical textbook in English, Oxford Medicine, and by his later Oxford Monographs. His chief attainment, from his point of view, has been the training of his assistants and internes who will bequeath his torch to posterity. His medical service at Brigham Hospital has become the foremost center of clinical teaching and research in America.

As a man Christian is above all else wise and conservative in accepting only such innovations in medicine as have been tested by time, experiment and experience. He exhibits most rare and uncommon sense in sifting the essential from the trivial. And, finally, he represents the highest type of the cultivated, unaffected, genial, honorable gentleman. Winslow.

Physiology of Love. By Paolo Mantegazza. Translated from the Italian by Herbert Alexander. Edited with an Introduction by Victor Robinson, M.D., Editor-in-Chief, Medical Review of Reviews, etc. 237 pp. $3.00. Eugenics Publishing Company, New York, 1936.

Physiology of love is stated to be a psychologic analysis of the principles of the emotions, a study of love in modern society and of how it might be constituted in a better society. A chapter is devoted to the analogy of love in plants and animals. It is essential to be familiar with the esthetic, the amorous and mental elements of passion as well as to understand the physical sensual requirements of love. A chapter on good and bad origins of love deals with a man of low type compared with one of high ideals. "Lechery is a fecund breeder of vulgar passions." "There is no such thing as love without sexual gratification, but voluptuousness alone is not love any more than are platonic relationships." Many phases of love are discussed from a religious standpoint, superstition, cultism and fetichism. The chapter on chastity states that this is not only repose, but it is a wise and potent source of new energy. There is an interesting chapter on love at different periods of life, describing the different manifestations in young and advanced years. The iniquities of love are summed up as impotence and prostitution. Stated briefly, "Love is not only an exchange of gratifications, but also a pact between two creatures that can in a single instant have created a family or even a whole people."

ALLERGY OF THE NOSE AND PARANASAL SINUSES. A Monograph on the Subject of Allergy as Related to Otolaryngology. By French K. Hansel, M.D., M.S. Assistant Professor of Clinical Otolaryngology, Washington School of Medicine, etc., with fifty-eight text illustrations and three color plates. 820 pp. $10. The C. V. Mosby Co., St. Louis, 1936.

In the preface of this book the author outlines his work as follows: "The object of this monograph is: (1) To familiarize the otolaryngologist with the clinical features of allergy as related to the field of otolaryngology, (2) to review the various phases of the subject itself and, (3) to point out the frequent association of its nasal with the other manifestations, particularly, (a) asthma, (b) gastrointestinal allergy, (c) allergic skin diseases, and (d) allergic headache.

"The subject matter is approached primarily by the consideration of: (1) The fundamental principles of physiology, biochemistry and bacteriology of the secretions, (2) the cellular reactions of the tissues in allergy and in immunity, (3) the histopathology of allergy as they relate to the nose and paranasal sinuses.

"Allergy in general and the clinical aspects of the manifestations in the nose and paranasal sinuses are reviewed in detail. Especial attention is directed to the otolaryngologic phases of allergy in children as related to pediatrics. An effort has also been made to review the important contributions on allergy as related to ophthalmology. In the chapter on treatment both allergic and rhinologic methods have been considered in detail. Four chapters have been devoted to the subject of hay fever in order to present this material in complete form. Finally, a group of selected case reports is reviewed to illustrate some of the clinical types of allergy of the nose and paranasal sinuses and to point out some of the principles of diagnosis and treatment."

The author has succeeded well in his effort to accomplish the purpose stated in the preface and has produced a book of real value. It is largely a review of reviews on his chosen subject. His diagnosis and treatment are given with evidence of great care and a desire to give the reader that fundamental working plan which must necessarily be mastered before he can undertake the diagnosis and treatment of his own cases. BLAIR.

PSYCHOLOGY OF SEX. A Manual for Students. By Havelock Ellis. 377 pp. $3.00. Emerson Books, Inc., New York, 1935.

The author states this volume is a condensed presentation of the seven volume "Studies in the Psychology of Sex." He declares that medical students receive absolutely no instruction in the psychophysical processes of sex, and ancient superstitions still prevail in medical schools. At the present time workers in sexual psychology find their warmest support among upholders of personal and public morality. There is truth in the statement, "a man is what his sex is." Much regarded moral today was immoral fifty years ago and now there is much open discussion of sexual matters. The chapter on "Biology of Sex" discusses the factors of sexual selection under touch, smell, hearing, vision. In choosing a mate "we tend to seek parity of racial and anthropologic characters together with disparity of secondary sexual characters and complementary psychic characters." The chapter on "Sexual Impulses in Youth," among other matters, discusses autoerotism, masturbation, narcissism and education in sex. Emphasis is placed on necessity of educating every school boy and girl concerning heredity, the inheritance and transmission of genetic peculiarities together with information regarding one's sexual nature. What were formerly called perversions are designated sexual deviations. While formerly looked upon as crimes or vices, it is now recognized that some of these may be sexual anomalies subject to treatment and relief. An interesting chapter on homosexuality presents many interesting illustrations of this condition. A useful feature of this book is the extensive bibliography at the end of each chapter and subdivision. One can read this volume with the knowledge that the author speaks from a wide experience and with a degree of authority on normal and abnormal sexual conditions.

THE HARVEY LECTURES. Delivered under the Auspices of The Harvey Society of New York. 1934-1935. Under the Patronage of the New York Academy of Medicine. Series XXX. 270 pp. $4.00. The Williams & Wilkins Company, Baltimore, 1936.

The purpose of the Harvey Society is the diffusion of knowledge of the medical sciences. Annual lectures are delivered with this purpose in view. This volume contains such lectures by eight distinguished members of the profession. Castle of Harvard Medical School discusses "Etiology of Pernicious and Related Macrocytic Anemias." Rose of University of Illinois considers "Significance of the Amino Acids in Nutrition." Sawyer of The Rockefeller Foundation discusses "Present Geographic Distribution of Yellow Fever and its Significance." Richards of University of Pennsylvania presents "Processes of Urine Formation in the Amphibian Kidney." Dodds of Middlesex Hospital, London, discusses "Specificity in Relation to Hormone and Other Biological Reactions." Anrep, Egyptian University, deals with "Relation of the Circulation in Voluntary and Plain Muscle to Activity." Blake of Yale University discusses "Pneumothorax in the Treatment of Pneumonia." Northrop of Rockefeller Institute for Medical Research discusses "Isolation and Properties of Crystalline Pepsin and Trypsin."

HANDBOOK OF SURGERY. By Eric C. Mekie, M.B., Ch.B., F.R.C.S. (Edin.), Medical Officer, Malayan Medical Service, etc. With a Foreword by John Fraser, M.C., M.D., Ch.M., F.R.C.S.E., Regius Professor of Clinical Surgery, University of Edinburgh. 699 pp. $4.50. William Wood & Co., Baltimore, 1936.

The author states that the purpose of this book is to give the essential facts of surgical treatment with little original being introduced. Special subjects have been omitted or abbreviated. There are forty-one chapters, some dealing with a specific injury, such as wounds, gangrene, tumors, while most of the book considers individual organs and the surgical diseases or complications to be found in connection with them. In concise form are presented facts of anatomy, pathology, clinical features and treatment. Thus in compact form one will find the important and essential facts pertaining to many surgical conditions.

The 1935 Year Book of Neurology, Psychiatry and Endocrinology. Neurology, Edited by Hans H. Reese, M.D., Professor of Neurology and Psychiatry, University of Wisconsin Medical School. Psychiatry, Edited by Harry A. Paskind, M.D., Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School, etc. Endocrinology, Edited by Elmer L. Sevringhaus, M.D., Associate Professor of Medicine, University of Wisconsin Medical School. 775 pp. $2.25. The Year Book Publishers, Inc. Chicago, 1936.

Various types of research in organic neurology are interesting, especially those concerned with the diagnosis, treatment and prognosis of head injuries. The use of encephalography in properly evaluating the amount of injury done has been studied rather intensively. Disease of the spinal cord, especially subacute combined degeneration of the anemic type, has been studied, from the standpoint of treatment massive doses of liver extract being recommended. In multiple sclerosis the use of quinine hydrochloride was studied by Brickner, Columbia University, with fairly beneficial effects, especially if used early in the disease. The report of the Los Angeles epidemic of poliomyelitis of 1934 was completely given, as well as several research problems concerning immunizaiton to the disease.

In the portion of the book devoted to psychiatry the usual number of research problems are reported, having to do with chemical and physiologic change in schizophrenia. Several papers report the effect of malarial inoculation in paresis. A larger amount of the book is devoted to the psychiatry of children than last year. The book presents the outstanding literature that has been published in neurology, psychiatry and endocrinology in the past twenty-four months in a comprehensive way and the authors seem to display good judgment in the choice of articles to be reported.

Hoedemaker.

V. CEFALU, M.D., *Director*

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Saved and invested	116,090.00
Total used for benefits	$651,142.00

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ONE HUNDRED YEARS OF MEDICINE IN OREGON*

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PORTLAND, ORE.

No history of Oregon, medical, economic or political, would be justified in omitting the name of Dr. John McLoughlin, the Father of Oregon, who came to the Columbia in 1824. Dr. McLoughlin looked after the injured and the ill in the early days of his long residence in Old Oregon, in addition to his duties as Chief Factor for Hudson's Bay Company at Fort Vancouver. However, the latter duties were the primary ones, and Dr. McLoughlin's medical work was that of the kindly man, with much native ability and an apprenticeship in medicine, but without the training of the schools in which the scientific medicine of the day was inculcated.

The present account is an attempt to trace in broad outlines the development of scientific medicine in the Northwest, so with this bow before the memory of the great man whose kindliness and farsightedness did more than any one else to make possible the Oregon we know we must pass on. Dr. Marcus Whitman, the missionary, must also receive the homage of profound respect as an important factor in opening the way for colonization and as healer, but he can scarcely be considered in the line of those who have advanced scientific medicine in our Northwest.

The first well trained physician to come to the Columbia and to remain as a practitioner of the healing art was William Fraser Tolmie who, with Dr. Gairdner, landed at Fort Vancouver on May 4, 1833.[1] He immediately began visiting the patients whom he writes are "pretty numerous," and two days after his arrival desired to perform a postmortem on one of these who had died meanwhile. The prejudices of the French Canadian voyageurs employed by the company were so opposed to autopsies that Dr. McLoughlin advised against it. Tolmie writes: "Must endeavor to overcome these prejudices when I become better acquainted with their nature and extent." He treated the numerous patients, including Dr. McLoughlin, suffering from intermittent fever, which he writes had by this time almost exterminated the natives of the Columbia.

Within a few weeks after arriving at Fort Vancouver, Tolmie was assigned to an expedition destined for what is now British Columbia, to open a new trading post at Milbank Sound. He journeyed overland to Puget Sound and on arriving at Fort Nisqually, where a small post had been established, he found one of the employees with his foot cloven by an axe. Instead of continuing with the expedition Tolmie was detailed to remain in attendance upon Pierre Charles, "the best deer hunter west of the Rocky Mountains," until he should be out of danger. This required much of the summer, during which Tolmie botanized, taught the Indians and had charge, as the only educated man, of the affairs of the station. He kept a detailed account in his journal of the condition of the patient and the treat-

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*From Department of Anatomy, University of Oregon Medical School.
*Read before the University of Oregon Medical School chapter of Alpha Omega Alpha, May 20, 1935.

[1] Larsell, O.: Outline of History of Medicine in Pacific Northwest. Northwest Med., 31:390, Aug., 437, Sept., 483, Oct., 532, Nov., 564, Dec., 1932.

ment of the infected foot. This is the first surgical case to be carefully described and recorded in the Northwest.

Gairdner had been left in sole charge of medical affairs at Fort Vancouver on Tolmie's departure. A hospital was erected for him and he treated 200 to 300 cases of intermittent fever by November of 1833. Tolmie writes in his journal: "Hope he (Gairdner) has written me an account of the disease and its treatment." No such account has come to light, but the hospital erected by Gairdner was the first attempt at permanent hospitalization in the Northwest. Gairdner, who was a trained naturalist, has left his imprint on the natural history of this region, and a number of species of plants and animals are named after him, among them the steelhead salmon, Salmo Gairdneri. He developed tuberculosis and went to the Hawaiian Islands in 1835 for relief, but died there.

Tolmie was transferred back to Fort Vancouver in 1836 and remained until Dr. Forbes Barclay arrived from England in 1840. Then, after a year in England, he returned to the Northwest and became an important factor in its economic development. He had been educated in medicine and botany at University of Glasgow, and had served in a London hospital during the cholera epidemic of 1832, prior to coming to the Columbia. He and Gairdner were the first well trained medical men to make their permanent abodes in the Northwest. Tolmie died in Victoria in 1886. His brief medical notes are the first, of which there is any record, of medical conditions in Old Oregon. He had to deal with the accidents of the frontier and with epidemics resulting in part from the white man's contact with another race.

Dr. Forbes Barclay had studied medicine at Edinburgh. His father, John Barclay, was a physician in the Shetland Islands. Forbes Barclay received his medical diploma from Royal College of Surgeons of London. It bears the signature, among others, of Sir Astley Cooper, the famous surgeon.

Barclay remained at Fort Vancouver from 1840 to 1850, when he moved to Oregon City. Here he practiced until his death in 1873. He has left the only record, so far discovered, by an eye witness who was a trained medical man, of some of the epidemics which decimated the Indian population of the Northwest.

There were a few other physicians in the settlements along the Willamette, most of them connected with the Methodist Mission, and American by training with one exception. They were practitioners with no scientific background, who served their day and generation as well as they were able. One of these, Dr. Elijah White, performed an amputation for tuberculosis of the knee in 1839.

In the same year that Dr. Forbes Barclay moved to Oregon City, a young man came to Portland, then a village of 821 people, who was destined to play a large part in the professional and civic life of the community. This was Dr. Robert Bruce Wilson, born in Virginia in 1828. He had studied medicine at University of Virginia and had served for some time in hospitals of Philadelphia, so he had the best that medical education offered in this country at that time. As Portland grew Dr. Wilson became the dean of the medical men of the city, keeping abreast of advances in his profession. He is described as an earnest student, conscientious in his practice and a cultured gentleman. He was the first physician of good education and medical training to settle permanently in the young town, where he remained until his death in 1887. He set a high standard of professional and civic activity as his chief contribution to the medical practice of the Northwest. Two of his sons, Holt C. and George F. Wilson became prominent physicians in their native city in the next generation, so that for seventy-five years the Wilsons have exerted an outstanding influence on the medical life of the Northwest.

Another important name is that of Dr. Rodney Glisan, who settled in Portland in 1861. He was born in Maryland, and in 1850 was appointed assistant surgeon in the United States Army. In this service he was sent to Oregon in 1855, taking part in the Rogue River Indian War. Later he was stationed at Fort Yamhill, about sixty miles southwest of Portland, where he engaged in civilian practice along with his care of the soldiers at the post. He resigned from the service in 1861 and came to Portland.

In 1865 Dr. Glisan, with Dr. R. B. Wilson and others, was appointed to the faculty of "Oregon Medical College," which it was proposed to establish in Portland.[2] The school did not begin to function, however, until two years later, and then at Salem as the Medical Department of Willamette University, so the Portland faculty was displaced by a group of Salem practitioners. In 1878, however, when the school was moved from Salem to Portland, Dr. Glisan and some of the others of the early appointed faculty began the first medical teaching in this city. For a number of years he served as professor of obstetrics and diseases of women and children. He contributed to leading medical journals, and in 1881 he published a "Textbook of Midwifery" which became a leading book in its field in this country, and which was seen in the libraries of distinguished professors in Paris and Vienna, as well as in London. As a surgeon Dr. Glisan is said to have performed the first amputations of shoulder and thigh and the second operation for strangulated hernia in the Pacific Northwest.

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[2] Larsell, O.: Development of Medical Education in Pacific Northwest. Oregon Historical Quarterly, 27:1926.

Mention has been made of Willamette Medical Department. The abortive attempt of 1865 was revived by Dr. J. H. Wythe, Dr. Horace Carpenter and others, and instruction was begun at Salem in 1867. Dr. Wythe had come to Oregon as president of Willamette University in October, 1865. He had studied medicine in Philadelphia, had served as an army surgeon in the Civil War, and was a Methodist clergyman. In 1851 he published a book, "The Microscopist, or a Complete Manual on the Use of the Microscope," which was the first book of its kind published in this country.

In the new medical school Wythe became professor of physiology and microscopy. He appears to have been a surgeon of some skill, but during his brief stay of four years in Oregon he was occupied with administrative duties and preaching more than with medicine. He has a place in our present story because it was due to him and Dr. Horace Carpenter that instruction in medicine was actually begun in the Northwest.

Dr. Horace Carpenter became dean and professor of surgery in Willamette Medical School. He had come to Oregon in 1861 as an army surgeon, but was mustered out of the service in 1865 and settled in Salem to practice medicine and surgery. As dean of the newly formed medical school he had a part for eight years in beginning medical instruction. He was also one of the organizers of Oregon State Medical Society in 1874, and took an active interest in planning and building the state hospital for the insane in 1883, becoming its superintendent.

The first effort to care for the mentally afflicted in Oregon had been made by Dr. J. C. Hawthorne who established a private hospital in 1860 in Portland. This was discontinued when the state hospital was established. To Dr. Hawthorne's hospital had come, in 1865, a young man who was to play a most prominent role in the development of medicine in the Northwest. This was Simeon E. Josephi who came from New York to become bookkeeper in the sanatorium. In 1875, however, he went to San Francisco to study medicine, graduating from University of California Medical School in 1877. He returned to Portland and immediately became a leader. He had an important part in organizing the State Medical Society, and was first president of Portland Medical Society, organized in 1884. In 1886, when University of Oregon Medical School was founded, Dr. Josephi was made dean, a position he filled for twenty-five years.

Associated with Dr. Josephi in this enterprise, which was to mean so much to the development of medicine in the Northwest, were Holt C. Wilson, K. A. J. MacKenzie, A. C. Panton, A. D. Bevan, Otto S. Binswanger, C. C. Strong, and others. A small building was erected on the grounds of Good Samaritan Hospital and instruction was begun in 1887. In 1893 a more adequate building was erected at Twenty-third and Lovejoy Streets. This was used until it burned in 1919, as the equipment was being moved into the first unit of the present building.

Dr. K. A. J. MacKenzie had come to Portland in 1882. He was a graduate of McGill Medical School, probably the best on the continent at that time. Energetic, able and a cultured gentleman, Dr. MacKenzie soon became one of the leaders among the medical profession. He gave the first paper to be presented to Portland Medical Society, on July 1, 1884, entitled, "On the History, Symptoms and Treatment and Postmortem Appearances of a Case of Perityphlitis." Another important figure, both locally and later nationally, Dr. A. D. Bevan, opened discussion of the paper.

Dr. MacKenzie was for many years professor of surgery in the medical school. In 1912 he succeeded Dr. Josephi as dean. The present location of the medical school and to a large extent its physical development are due to "MacKenzie's dream," as it was called, which envisioned a great school on the commanding site it now enjoys, which was obtained as a gift through the good offices of Dr. MacKenzie.

The training and alertness of Dr. MacKenzie are reflected in a piece of epidemiologic work which was probably the first of its type in the Northwest. In 1889 an epidemic of typhoid fever broke out in the city. It will be recalled that Eberth, in Germany, had discovered the typhoid bacillus in 1880, but its biologic characteristics were not known until the study of Gafsky in 1884. Its manner of distribution was still obscure. Under date of June 21, 1889, the

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3. Larsell, O.: History of Multnomah County Medical Society. Northwest Med., 34:218-222, June, 1935.

minutes of Portland Medical Society record a clean-cut and excellent epidemiologic study of the epidemic by Dr. MacKenzie which could hardly be better made at the present time.

To Dr. A. E. McKay, who came to Portland in 1889, just out of Toronto Medical School, is largely due the credit of introducing the science of bacteriology into medical teaching and practice in the Northwest. He had been trained in bacteriology by Ramsay Wright. He taught in the medical school, presented papers before the medical society, talked bacteriology in the hospitals, and through his enthusiasm and energy gave a great and needed stimulus in this direction. One result of the interest in bacteria and in epidemics was the purification of the city water supply in the early 1890's. The water had been pumped from Willamette River a short distance from the outlets of two of the main sewers. After a bitter campaign led by Dr. A. E. Rockey and others of the medical profession, the city authorities were educated to the need of obtaining water from noncontaminated sources, resulting eventually in the Bull Run water system, one of the best in the country from the viewpoint of purity at its source.

Since 1887 there had been two medical schools in the city, which had a population in 1890 of 46,385. As a result of the financial depression of 1893 the Methodist Hospital, on the East Side, was forced to close in 1895. This was the hospital of Willamette Medical School which was now left without clinical facilities, since Good Samaritan and St. Vincent's Hospitals were controlled by the medical group centered about University of Oregon Medical School. Willamette Medical School was faced with the alternative of closing or of moving to Salem, where the remainder of the university is located. The latter choice was made by the Board of Trustees.

The remaining school now had a clear field without the rivalry so frequently evident under the older conditions. It did not make the best use of the opportunity for high grade medical instruction. The faculty was made up of busy practitioners. Lectures were held at the building on Twenty-third and Lovejoy, and clinics in the adjacent hospitals. However, people get sick at most inopportune hours, and babies make their appearance with no regard for clocks which they have never seen, and the doctors in the horse and buggy days frequently found themselves miles from the lecture room at the hour when they were scheduled to appear before the class. Many lectures were thus never given. Numerous pool halls sprang up about the medical school, and the students kept a lookout posted to inform them if the professor appeared at the appointed hour. If he did so, a whistle was sounded and they hurried to class. If he did not, they continued their game, no doubt exchanging sundry pieces of loose change as a result.

The gay nineties and the early part of the new century was a period of low ebb for the medical school scientifically. Its financial resources were limited to the fees paid by students and a grant of $1,000 per year, since 1900, by the Board of Regents of the state university. Equipment was meager and supervision of instruction limited. The professors of the various subjects gave their lectures, when not prevented by their professional calls, and at the end of the year divided up the fees, which usually gave a stipend of about $5 per lecture.

The famous report on medical education in the United States by Abraham Flexner, in 1910, criticized the school in no uncertain terms.[4] As a result, to maintain its rating the appropriation from the university was increased to $2,500 per year in 1910, and in the President's report to the Board of Regents it was stated that at least $10,000 annually would be necessary to meet the requirements for continued recognition. The legislature came to the rescue with a grant of $20,000 for maintenance and $10,000 for equipment for the biennium, 1911-12. Subsequent appropriations have placed the institution on a firm basis.

An immediate step was also taken by the appointment on June 16, 1910, of Dr. David N. Roberg as acting professor of anatomy on a salaried basis. The following year Dr. J. D. MacLaren was made professor of physiology. In January, 1912, Dr. F. C. McLean and Dr. R. B. Dillehunt assumed the duties of professor of materia medica and of anatomy, respectively, Dr. Roberg having been made professor of pathology. Two additional instructors, Dr. R. L. Benson in microscopic anatomy, and J. M .Connolly in Physiologic Chemistry and bacteriology, completed the roll of the first full time faculty.

In this connection a word must be said about clinical facilities. In May, 1909, arrangements were made with the county authorities to use the county hospital for teaching purposes. In August the dean was authorized to arrange for clinics by its staff. In the fall of 1908 the beginnings of the present dispensary were made at the People's Institute, on Fourth and Burnside streets. By January, 1910, the average number of patients had reached fifteen to twenty-five per day. On January 1, 1910, the dispensary became affiliated with the medical school, and in February, 1916, larger quarters were secured at Fourth and Jefferson streets. In 1931 the present Outpatient Dispensary, the gift of the Rockefeller Foundation, was opened.

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[4] Flexner, A.: Medical Education in the United States and Canada. New York, 1910.

Dr. Josephi, after twenty-five years as dean of the medical school, was succeeded in 1912 by Dr. K. A. J. MacKenzie. The Willamette Medical Department, which had continued at Salem since 1895, when it had removed there from Portland, discontinued in 1913, with an arrangement by which its graduates were sponsored by the state medical school.

In this same year attendance at the dispensary was made compulsory, and other important reorganizations were carried out. The county hospital, housed in an old residence in South Portland, was replaced in 1922 by the present modern building and equipment, with close connection with the medical school faculty.

The medical school building, the east wing of which was first occupied in 1919, was completed in 1922. Doernbecher Hospital, made possible by a gift from the Doernbecher heirs, was put into use in August, 1926. The present splendid campus of 108 acres, including the site of the Veterans' Hospital, was given the school by the Union Pacific Railroad and the heirs of Mr. C. S. Jackson, publisher of the Journal.

The teaching of modern medicine has thus been made possible in the Northwest with adequate facilities. After the death of Dr. MacKenzie, in 1920, Dr. R. B. Dillehunt was elected dean. He has built upon the foundation laid by the two previous deans, and has seen the fruition of their dreams. During his incumbency the building program and the organization outlined above have been carried out. When the history of the medical school is written one hundred years hence, Dr. Dillehunt will undoubtedly loom as the most important figure in the development of the teaching of scientific medicine, because of his energy, vision and high ideals for the school.

Returning to the main channel of our story, which is the development of medicine rather than of the medical school, we must consider, as an important part of the picture, the establishment of hospitals. I have spoken of the hospital built by Dr. Gairdner at Fort Vancouver in 1833. A structure intended for hospital purposes was also begun at the Methodist Mission near Salem, in 1837, but progress was so slow that it was not completed until 1839. With the "Great Reinforcement" to the mission in that year it became necessary to use the building to house the newly arrived missionaries.

Dr. David S. Maynard started a hospital in Seattle about 1867, among many other enterprises he initiated in that city. Concerning it there is little information. The first hospital in Portland was initiated in 1873, when the Society of St. Vincent de Paul purchased property on Eleventh Street between Marshall and Northrup for a hospital site. The Sisters of Charity of Providence were given this site and $1,000 in cash on July 19, 1874, and the next day began plans for a hospital.[5] The building was completed the following year and dedicated July 19, 1875. A young man had already presented himself as a patient on June 24, and had been admitted. On the evening of July 19 the ambulance brought in a Chinaman, one of whose legs had been mangled by machinery. Dr. Alfred Kinney amputated the leg, the first operation to be performed in the hospital. In 1892 the cornerstone was laid for the present building, against the protests of many doctors and laity, who considered that the new project was so far out in the woods that no patient would ever go there. It was completed in 1895, with a capacity of 275 beds, since increased to 400. In 1875 Good Samaritan Hospital was opened, receiving its first patient on October 10.

These two institutions formed the nucleus about which a group of excellent medical men centered their practice and subsequently their teaching, as already mentioned. Dr. Henry Jones was the first chief of staff of St. Vincent's and so continued for a third of a century. He was succeeded by Dr. K. A. J. MacKenzie. The smaller cities also have built hospitals, especially during the past fifteen years, so that now facilities are everywhere provided. The contrast with the hospitals of a generation ago is one of the most striking comments on the progress of medicine and surgery.

Among the more prominent physicians and surgeons who made use of these hospitals in Portland must be named Drs. A. E. Rockey, William Jones,

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[5] St. Vincent's Hospital Golden Jubilee. Catholic Sentinel (Suppl.), August 20, 1925.

Robert Yenne, George F. Wilson, J. F. Bell, Ernest F. Tucker and Andrew C. Smith. Many others should be included, but time forbids a longer list.

Dr. Rockey came to Portland in 1891, having begun practice of medicine in Iowa in 1878. He became an important figure in the life of the city. One of his greatest contributions to scientific medicine in Portland was his campaign for a pure water supply in 1893, with the result that contaminated water from the Willamette River ceased to be pumped into city mains. He had studied in Germany, Vienna and England, and at the time of his death, in 1927, was esteemed as one of the outstanding surgeons of the Pacific Coast. By his surgical skill and his teaching in the medical school he had contributed much to his profession in the Northwest.

Dr. William Jones, a younger brother of Dr Henry Jones, became one of the more prominent physicians. Dr. E. F. Tucker, trained at Harvard who came to Portland in 1890, exerted a beneficial influence on the entire profession. Dr. Robert Yenne, much loved by all, and Dr. J. F. Bell, energetic and vigorous, all played their parts in furthering the practice of scientific medicine and surgery as these subjects developed from year to year.

Dr. Andrew C. Smith, still in active practice, must be included in our story. He came to Portland in 1892, after having been a medical officer in the Army for many years. He soon became one of the outstanding surgeons of the Northwest and has been honored by national societies. His courage and success in difficult operations have stimulated others to greater efforts and so have advanced scientific surgery.

Medical societies are of great importance in the development of professional standards and constitute an important factor in the history of medicine. Oregon State Medical Society was organized September 1. 1874, forty-one years after the arrival of Dr. Tolmie. Dr. A. C. Kinney, still living, was the first president. At the second meeting of the society, held in Portland, September 14, 1875, a committee on medical education was appointed and was instructed "to prepare an annual report on the general condition of medical education in Oregon as compared with the advancement of medical science in other states of the Union."

A glimpse of the standards of medical practice at the time may be gained from a portion of the report of this committee in 1879. It reads:[6]

> "In this connection we take occasion to protest against the prostitution of the title (M.D.) so commonly practiced. While we respect medical knowledge and skill wherever found and however obtained, the right to be called 'Doctor' is possessed only by those who have that degree legally conferred upon them, and the man who unblushingly calls himself 'Doctor' or encourages others to do so, when he does not possess a right to that name, is as dishonest as he who assumes the prefix 'Colonel' or 'General,' without the documentary evidence that he has a right to be so called. If we would be respected we must respect ourselves. The ignorant pretenders who brazenly put 'M.D.' to their names to spell 'sody,' 'sweat oil,' and 'blew mas' in their prescriptions, who cannot tell mumps from erysipelas, dyspepsia from pleurisy, who declare they have treated cases of adhesive inflammation at the insertion of the internal rectus with the sphincter ani muscles, and seen young men with puerperal convulsions— such pretenders, we say, do us but little injury, for their ignorance is so apparent that the public is not long in perceiving it. It is our recognition of them which lowers us without elevating them. Calling such men 'Doctors' and counselling with them degrades us. They are not capable of imparting or receiving knowledge. * * *
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> "The one great medicine (to remedy these evils) we would employ, almost the only one having any power, is medical education. Our medical colleges must be educated up to a proper realization of their duties. They must produce better results. As a rule their work has been by far too carelessly performed. We would not put an impediment in the way of any aspirant for medical honors, but we would insist on ability and character as absolutely necessary for the procurement of them. Of what use are laws for the suppression of quacks and self-styled doctors when medical colleges confer the honorable degree of M.D. upon ignorant and incompetent men? Justice to the public and to the candidate for the degree require that more time be given for the acquirement of medical knowledge and a far more searching investigation made as to the qualifications of those furnished with authority to take charge of public health. Most of the evils which now beset us would be removed by proper care in this direction."

Through its history of more than sixty years the state society has played its part in the medical story of Oregon, both through the standards it has established and through bringing physicians of outstanding prominence from various parts of the country to address its gatherings.

In 1884 Portland Medical Society, now Multnomah County Medical Society, was founded, composed of the leading physicians of Portland, many of whom were connected with the medical school. Led for many years by such able and strong personalities as Drs. Josephi, MacKenzie and others, this society has been an important factor in scientific medicine. The subsequent establishment of Portland Academy of Medicine has emphasized even more strongly the scientific aspects of medicine. The lectures given under its auspices by eminent physicians and scientists have been a noteworthy contribution to the medical thinking of the Northwest.

The development of the specialties should not be omitted. Dr. F. B. Eaton appears to have been the first in Portland to have limited his practice more or less to eye, ear, nose and throat. He came to the city in 1881 and was a charter member of Portland Medical Society. Dr. John F. Dickson was one of the first with adequate training in his specialty, also eye, ear, nose and throat. In place of a short course of a few weeks, following some years of general practice, which was the custom, Dr. Dickson had spent some years in the clinics of Germany and Austria. He came to Portland in 1889 and remained in active practice until 1932, recognized as the dean of his specialty.

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[6] Proceedings Oregon State Medical Society, 1879.

Dr. A. E. Mackay, to whom reference has already been made, began from the first to pay his chief attention to genitourinary diseases. During the first five or six years in Portland he did general practice also, but from 1895 on he has been the leader in urology.

In 1905 the Open Air Tuberculosis Sanatorium was established near Portland. Dr. Woods Hutchinson had come to Oregon in 1900. On March 20, 1901, he read a paper before Portland Medical Society on "The Factors Which Predispose to Tuberculosis in Man and Animals." As a sequel of this, a committee, with Hutchinson as chairman, was appointed to assist in founding an open air sanatorium. In this the scientific study and treatment of the "White Plague" has been advanced under the management first of Dr. E. A. Pierce and subsequently of the Drs. Ralph and Ray Matson and Marr Bisaillon.

It is not possible within the limits of time imposed by an occasion of this sort to survey all the specialties or to name all of the excellent doctors who have claim for inclusion. This is chiefly a story of origins rather than of full accomplishment. However, the career of at least one who attained recognition throughout the world should be included, because it illustrates in the life of one individual what has been accomplished in the Northwest, and because it rounds out with a record of acclaim the one hundred years of medicine at the hands of scientifically trained men, begun by Tolmie in 1833.

The most widely recognized medical man who has practiced in the Northwest was probably Dr. R. C. Coffey. He came to Idaho from North Carolina with his parents in 1888. After graduating in medicine at Louisville, Kentucky in 1892, he located in Moscow. In 1897 he moved to Colfax, Washington, and there began the experimental surgery, using pigs chiefly, which was to make his name known throughout the world. One can scarcely envision conditions less conducive to experimentation in the field of medicine or surgery than the new town in the wheat country of Eastern Washington, or than the frontier army post of Prairie du Chien in Wisconsin, where Beaumont made his important contribution to physiology in 1833. In 1900 Dr. Coffey moved to Portland and continued his experimental surgery, sometimes at the abattoir, sometimes in the basement of his house, with his wife administering the anesthetic.

This is not the place to recount the story of Dr. Coffey's life. We may merely note that he contributed ninety-one medical papers to the various journals, representing his own studies. He wrote a monograph on "Gastroenteroptosis" (1923) and contributed chapters to a number of other works on surgery, based on his own experimentation. Among these are the following: "Surgery of the Pancreas" in Binnie's "Treatise on Regional Surgery," 1917; "Gastroenteroptosis" in Dean Lewis' "Practice of Surgery"; a chapter of "Application of the Quarantine Drain in Abdominal Surgery" in the commemorative volume in honor of Prof. Alexandri's thirty years in the Royal University of Rome; and a chapter on "Transplantation of the Ureters into the Large Intestine by the Submucous Implantation Method" in the volume commemorating Prof. Fedorov's forty years of scientific activities in Russia. These are cited to show the international character of his recognition. The text-books of surgery, American and European, contain descriptions of Dr. Coffey's procedures, including the hammock operation for enteroptosis, his methods of transplanting ureters, bileducts, etc., and his adaptation of quarantine drainage. The latter he himself considered his most important contribution to surgery. The surgeons of the world have recognized his contributions, and Dr. Coffey at the time of his death, in 1933, was recognized as one of the outstanding surgeons of his day.

Thus from the time of the landing of the first physicians, Tolmie and Gairdner in 1833, at a fur trading post in a region probably more remote from the civilized world in contemporary thought than Tierra del Fuego is at present, to the death of Dr. Coffey in 1933, we have in outline the development in the Northwest of one of the most important activities of mankind, the relief of pain and prolongation of human life. Many other aspects of the activities of medical men could be added to the tale. The story of their individual struggles, the heroism, unassuming and matter-of-fact, which placed the patient above personal danger or discomfort in times when real hardship was the rule in travel, professional rivalry, the restlessness of the human spirit, the love of gain, all these have their part in a fascinating story, but the main current has been a steady, strong flow in the direction of high ideals, scientific attainment and unselfish service to patients and community.

Perhaps I can give a picture briefly of some of the various aspects of the doctor's life a generation ago by recounting a few of the stories told me by men still in practice, whose names I shall not use. Here is a picture of childbirth on the frontier in the early 1890's. A log cabin of one room, with a large fireplace at one end. The stuffy, dirty, evil smelling room crowded with sympathizing neighbors. A woman, forty-eight hours in labor, exhausted and uncovered, on a pallet before the fireplace, waiting for the doctor who had been sent for as a last resort. The husband distracted and helpless, the neighbors, for want of knowing anything else to do, singing "Jesus is mighty to save." The doctor, when he arrived, chased out the singing neighbors, got things cleaned up and helped the suffering woman.

Another picture: An epidemic of diphtheria, shortly after antitoxin had been introduced, and shipments were obtained from Germany. A family of five children exposed, others in the family having already died of the disease, the doctor sent for, drove twenty miles with horse and buggy. He had to cross the river at night on horseback, standing on his knees in the saddle and holding on to the saddle-horn. Blocks of ice floating in the swift current almost overwhelmed the horse. Lighted with a lantern, he finally reached the house on the opposite shore. He injected the children and collected $90 in gold. The father agreed that, while it was a lot of money, it was worth it and cheaper than a funeral.

This same doctor, on returning to his practice after his honeymoon trip, found his town in an epidemic of diphtheria. He fortunately had a supply of the antitoxin of the day which frequently produced a marked reaction and swelling. He injected himself in the hip, since he was right handed, in the left hip. Then without sufficient forethought, he injected his wife in the right hip. The reaction was so severe and the swelling so marked in both of them that they had to change sides in bed.

Another story, told me by a former city health officer of the late 1880's. A Chinaman was ill of smallpox. The health officer had to take charge. He did what he could but the Chinaman died, so the doctor had to dispose of the remains as quickly as possible without exposing others. He called in Jim, the driver, who frequently helped him in emergencies, gave him a big drink of whiskey, took one himself, and between them they loaded the Chinaman's corpse into the buckboard wagon and drove the horses at a run to Lone Fir Cemetery on the East Side. Here, with a rope around the legs of the corpse, they snaked him into a grave, hastily dug, and drove away, each smoking a big cigar as a disinfectant. The doctor, until his death a short time ago at the age of 85 years, has been hale and hearty and in active practice.[7]

Lest we forget, and lest, in Kipling's phrase, we "look too good and act too wise," it is worthwhile occasionally to review the long, hard struggle for knowledge and for facilities, by those who have gone before us, and to take off our hats for a moment in respect to those who have led the way to present accomplishment.

MARCUS WHITMAN, M.D.

PIONEER PHYSICIAN

Samuel James Newsom, M.D.

WALLA WALLA, WASH.

With 1936 representing the centenary of the arrival of Marcus Whitman to the Pacific Northwest, we have an unusual opportunity to pay homage to the perseverance, fortitude and courage of a man whose career has few equals. Marcus Whitman was born at Rushville, New York, September 4, 1802, the second son of Beza and Alice Whitman. Marcus began the study of medicine under Dr. Ira Bryant at the age of eighteen. During the years 1825-26 he attended the College of Physicians and Surgeons at Fairfield, New York. He then went to Gainsboro, Canada, now St. Ann, where he practiced his profession for about four years.

Whitman wanted to be a minister. In the fall of 1830 he returned to Rushville and began the study of theology. For various reasons he found it necessary to give up these plans. He returned to his medical college in the fall of 1831 and was graduated the next spring. Sometime after his graduation and before the close of that year, he settled in Wheeler, New York, where he established himself as a physician.

He first applied to the American Board of Commissioners for Foreign Missions in 1834 for permission to act as a medical missionary to Old Oregon Territory, and was rejected because of ill health. He was persistent, and on January 6, 1835, was appointed a missionary physician to accompany Samuel Parker in his explorations.

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[7] Dr. C. H. Wheeler.

On this journey the missionaries were first unpopular with the rough men in the fur company's employ. Whitman once wrote: "Very evident tokens gave us to understand that our company was not agreeable, such as the throwing of rotten eggs at me." At Bellevue an epidemic of cholera broke out among the men that resulted in three deaths. More would have died but for the timely and efficient ministrations of Dr. Whitman. In this way he removed the antagonisms which had existed, and after that the missionaries were treated with kindness and consideration.

On July 12, 1835, they reached the rendezvous, and the news that a doctor was there spread quickly. The day after their arrival Whitman extracted a three-inch iron arrowhead from the back of the famous mountaineer, James Bridger. By this act he became the first American physician to perform a surgical operation west of the Rockies.

The following year Marcus Whitman and Henry Harmon Spalding led their party across the plains and mountains from St. Louis to the Fort Walla Walla territory. Then they separated, Spalding establishing a mission at Lapwai and Whitman settling at Waiilatpu. Here he rendered invaluable service to the immigrants and Indians alike. Mrs. Whitman wrote in 1847: "* * * you see my dear Marcus is almost always on the move. A head and heart more full of benevolent plans and hands more ready in the execution of them for the good of the poor Indian and the white population of the country, you have probably never seen."

One of the major problems these pioneers had to contend with was an enforced deficiency diet which caused much distress and death, due to the then unknown vitamin deficiencies. Dr. Whitman in writing to the Secretary of War in 1843 says: "Many cases of sickness and some deaths took place among those that accomplished the journey this season, owing in great measure to the uninterrupted use of meat, salt and fresh, with flour, which constitute the chief articles of food they are able to convey on their wagons." Mrs. Whitman wrote, during their journey in 1836: "All our variety consists of the different ways of cooking (buffalo meat). I relish it well and it agrees with me. My health is excellent. So long as I have buffalo meat I do not wish anything else. Sister Spalding is affected by it considerably, has been quite sick."

Another major difficulty consisted in coping with the primitive customs and psychology of the native Indian tribes. In 1837 Mrs. Whitman noted in a letter to her mother: "There has been much sickness, both at Vancouver, Walla Walla, and here, and some deaths. The Indians here had but just begun to break ground for planting, when many of them were taken sick with an inflammation of the lungs. This was severe upon them (as history has demonstrated with diseases introduced into races which have not been racially immunized against them) and threw them into great consternation. The old chief Umtippe's wife was quite sick and came near dying.

"For a season they were satisfied with my husband's attention, and were doing well, but when they would overeat themselves or go into a relapse from unnecessary exposure, then they must have their te-wat doctors say that the medicine was bad and all was bad. Their te-wat is in the same species of juggling as practiced by the Pawnees, which Dr. Dunbar describes, playing the fool over them and giving no medicine. They employed them over and over again but they remained the same. Soon they became weary of these, and must have a more noted one. Umtippe got in a rage about his wife, and told my husband, while she was under his care, that if his wife died that night he should kill him.

"The contest has been sharp between him and the Indians, and my husband was nearly sick with the excitement and care of them. The chief sent for the great Walla Walla te-wat for his wife at last, who came, and after going through several incantations and receiving a horse and a blanket or two, pronounced her well, but the next day she was the same again. When the te-wats were called, husband had nothing more to do with them. Their sickness commenced about the first of April, and through the great mercy of God to us none of them died to whom medicine was administered. Near the last of April the old chief was taken sick, and notwithstanding all his villainy he came to my husband to be doctored. He was very sick, and we thought he would die, but the medicine given him soon relieved him."

In 1840 she again wrote, saying: "There has been much sickness among them this spring and several deaths; some of them were our firmest friends. Their sickness caused us a great deal of perplexity, care and anxiety. They are anxious to take medicine, but they do not feel satisfied with this alone; they must have their jugglers playing over them or they will surely die. We have two or three instances where some have died without being played over. They are such miserable nurses that they die by their own neglect. We have been kept much of the time occupied in visiting and preparing food and medicine for them. It has been an unusually interesting time with them this spring."

Whitman continued his great work despite his own physical condition, which was poor before he embarked upon his journey. Mrs. Whitman wrote, in 1837: "Weak, frail nature cannot endure excessive care and anxiety any great length of time without failing under it. I refer more particularly to my husband. His labor this spring has affected his health considerably. His old complaint in his side affects him occasionally."

He writes to the American Board in April, 1844, saying: "I have been obliged to be very careful not to exert myself the past winter on account of lameness arising from a tumor on the instep. Of late I have worked considerable, which has increased the difficulty so that I have had to recourse to the use of a crutch in order to move about. The tumor appears to arise from the bone and threatens to be obstinate."

During May, 1844, Dr. Whitman wrote to his father and mother: "I had an inflammation in my foot which threatened to suppurate, but I discissed it and thought nothing more of it until I got home, when I found that I had a tumor on the instep. It appeared to be a bony tumor and has given me a great deal of apprehension and inconvenience, but is now some better but not well." Narcissa Whitman comments in a letter written in 1836: "Husband has been sick today, and so lame with the rheumatism as to be scarcely able to move. It is a great privilege that we can lie still today on his account, for he needs rest."

The practice of medicine has changed greatly since the time of Marcus Whitman. Present day physicians can scarcely realize the difficulties experienced by pioneer practitioners. The hundredth anniversary of the arrival of Marcus Whitman and his party to the territory to which NORTHWEST MEDICINE is devoted is being celebrated this year. His martyr's death only accentuates the respect which we must feel for this truly great physician.*

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*The author makes no pretense of originality in the preparation of this paper. Verbatim extracts from "Henry Harmon Spalding," by Dr. C. M. Drury, letters to the American Board, and transcripts of the Oregon Pioneers Association have been used. To all these sources may I give full credit for material utilized. Miss Elinor Henry, historian for the Whitman Centennial, has been of invaluable assistance.

STOKES-ADAMS SYNDROME FOLLOWING INFLUENZA

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The injurious effects of rheumatic fever and of diphtheria on the heart are universally recognized. It is not so widely understood that there is a third acute infectious disease, in which the attending physician should watch vigilantly for signs of cardiac damage, and that this disease is influenza. That the influenza is running a mild course is no guarantee against heart complications. This may perhaps be explained by the fact that it is above all the conduction system that is liable to attack by the toxins developing in influenza and the conduction tract is an exceedingly vulnerable portion of the heart.

In one hundred cases of influenza Egedy[1] found twenty-seven with cardiac complications. In twenty-one of these there were electrocardiographic changes. In about fifty per cent the cause of the cardiac complication was a lesion of the conduction pathway. The disturbance of conduction usually means that the myocardium has sustained structural damage, but this damage may not be of a permanent nature. Roulet[2] thinks that the role of mixed infection is much more important in producing heart complications in influenza than is that of the bacterium that is the actual excitant of the influenza, and it has been noted by others that the streptococcus has a peculiar tendency to involve the auricle and conduction pathways. Changes in the electrocardiogram indicating defects in conduction are frequently the only evidence that the heart has been attacked.

The heart complications of influenza are usually of late appearance, after the fever has run its course, and often after convalescence is well advanced. They may, indeed, not be recognized till they appear as late sequelae, months after the influenza. Furthermore, it is probable that many cases of myocardial disease are attributable to influenza dating back for a period of years, just as is the case with rheumatic fever.

Complete heart block is a relatively rare complication of influenza, and the Stokes-Adams syndrome is still more exceptional. But a slow pulse has been noted as a fairly frequent accompaniment of influenzal infection by the older as well as by

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1. Egedy, E.: Ueber Herzbeschwerden bei der Grippe. Ztschr. f, klin. Med., 125:547-553, Oct. 23, 1933.
2. Roulet, F.: Ueber Myocarditis bei Grippe. Virchows Arch. f. path. Anat., 295:438-448, Aug. 29, 1935.
3. Machado, A.: Acerca del Pulso Lento en la Gripe. Gac. med. de Caracas, 26:47-49, Mar. 15, 1919.

the more recent writers on the subject. Machado[3] states that Rutty mentioned the bradycardia of influenza as early as 1762 and Hodson in 1800. Huchard,[4] in 1890, and Widal,[5] in 1891, again called attention to the frequency of slow pulse in influenza. More than one author has pointed out that the pandemic of 1918-19 was characterized by the extreme frequency of bradycardia. Machado states that in two hundred and seventy-five influenzal patients in a garrison hospital in Munich, 46 per cent exhibited marked slowness of the pulse, frequently with irregularity, lasting from ten to twelve days. Both absolute slowness, 48-60 with low temperatures, and relative slowness, 80-120 with very high temperatures, and both "primary" (appearing at onset) and "secondary" (appearing during convalescence) were observed.

Curtis[6] saw bradycardia in 20 per cent of his patients during the same pandemic. Cockayne[7] noted that the majority of influenzal patients exhibiting bradycardia or other evidence of disturbed conduction were young men. The fact that the severity of the acute infection does not determine the severity of the complication in the circulatory apparatus and especially in the heart is emphasized by Roulet. He found the pathologic changes in the heart in the 1918-19 pandemic slight. "It would seem," he says, "that in the less stormy epidemics that followed the heart was more seriously involved." In these less stormy epidemics the heart action inclined to be rapid and irregular.

Various explanations have, from time to time, been advanced for the bradycardia observed in influenza: toxic inhibition of the impulse-forming activity of the sinus node, vagal excitation, dromotropic disturbances, and causes outside the heart. The fact that the pulse disturbances sometimes appear long after the illness shows that they must have some other basis than the physical and psychic prostration that are such well known features of convalescence from influenza. All varieties of bradycardia may be observed in or following influenza.

I have spent some time in discussing bradycardia in influenza, because, though no universally satisfactory definition of the Stokes-Adams syndrome has ever been made, slowness of the pulse is an essential part of the syndrome. Heart block, partial or complete, has been reported after influenza in a moderate number of cases, but the Stokes-Adams syndrome as a complication or sequel of this infection appears in the literature only as a rarity. Permanent bradycardia and syncope, with more or less clearly defined epileptoid convulsions, constitute the main components of the syndrome which appears when a partial heart block passes over into a complete heart block, or during complete heart block when some change occurs in the slow ventricular rhythm.

A brief communication appearing in *Journal of the American Medical Association* at the beginning of 1919 suggests that, at any rate during the pandemic then in progress, when the slow pulse was noted in an unusually large number of cases, the Stokes-Adams syndrome may have been a much more common occurrence than has been generally suspected. In this communication Salzman[8] writes: "Many physicians no doubt have frequently seen cases of influenza in which, weeks after the fever has subsided, the pulse is slow and easily compressed, and the patient complains of dizziness, extreme weakness and depression and on attempting to get up usually falls into a faint. . . . This condition I have seen about once in every twenty or twenty-five cases of influenza under my care and it has appeared in cases showing the very mildest or slightest degree of infection, as well as in the severer types. . . . It lasts only three or four days." Salzman suggests a disturbance of the suprarenal gland affecting the blood pressure as the cause.

The bradycardia and the syncopal attacks of the Stokes-Adams syndrome are usually already established at the time of the first examination of the patient, but Vaquez[9] saw a case in which, following attack of influenza, seizures of vertigo appeared and the pulse rate fell progressively over a period of six months, from 40 to 26, where it was maintained. Vaquez insists on the similarity of the pathogenesis of the Stokes-Adams syndrome in diphtheria and in influenza. In both cases it is due to the attack of toxins on the myocardium and especially on the primitive bundle. He quotes Calvin Smith's statement that he had never seen this syndrome in diphtheritic patients who had received early and adequate doses of antitoxin. That it is not dependent on the mechanism which produces the paralysis is shown from the fact that it occurs without as well as with paralysis.

Again and again we find surprise expressed at the mildness of the influenza which may give rise to this alarming sequel. Tellgmann[10] mentions such a case.

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[4] Huchard: Traité clin. d. Mal. du Coeur, vol. I, 1890.

[5] Widal: Charcot's Traité de Medecine, 1891.

[6] Curtis, G. P.: Cardiac Sequelae of Influenza. J. Med. Soc. N. Jersey, 17:45-48, 1920.

[7] Cockayne, E. A.: Heart Block and Bradycardia following Influenza. Quart. J. Med., 12:409-413, 1918-19.

[8] Salzman, S. R.: Effect of Influenza on the Heart. J. A. M. A., 72:61, Jan. 4, 1919.

[9] Vaquez, H. (Geo. F. Laidlaw): Diseases of the Heart, W. B. Saunders, Philadelphia, 1924.

The patient had had pains in the joints, followed a little later by general body pains and slight malaise, but did not feel ill enough to call a physician. On the night of the fourth day of this indisposition he was seized with sweating, vertigo, cough, difficult respiration and vomiting. In the morning he could not get up and was brought to the hospital in an ambulance. There were attacks of loss of consciousness for several minutes at a time. His skin was of a waxy pallor, the face was covered with cold sweat; dyspnea and apathy were present. The pulse was moderately strong, full and regular, twenty beats to the minute. A fluoroscopic examination made four days later showed the heart shadow enlarged in both directions. Four weeks later the pulse rate was seventy. The patient in this case was a young man of 28, active in sports, a champion swimmer.

Tellgmann considers that the heart was already hypertrophied as a result of exertion in sports and that it dilated under the influence of toxins. The dilatation brought about interruption of conductive impulses and this led to bradycardia. The defective heart action produced a severe cerebral anemia which explains the loss of consciousness, the vertigo and the vomiting.

Perlstein[11] reports a case illustrative of the length of time that may elapse between the infection and the syndrome under consideration.

A young man of 22 had influenza in November. Convalescence was slow. In February he had a syncopal attack with slow pulse. For four months thereafter he was troubled with dyspnea on slight exertion and vague pains over the right upper quadrant. Eight months after the influenza the pulse was thirty-one, the rhythm regular.

One of the most complete descriptions of the Stokes-Adams syndrome following influenza appeared in a Brazilian journal and records a case observed in the 1918-19 pandemic. Balena[12] states that in his part of the world influenza occurs in annual epidemics and is benign. Between 1915 and 1918 he observed twenty-five cases of slow pulse following influenza and in two of these the Stokes-Adams syndrome was complete: slowing of the pulse with vertigo, nausea and vomiting, and syncopal attacks associated with slight convulsions of certain groups of muscles. In other words, he saw all the clinical modalities of bradycardia appear in certain periods of the evolution of influenza. Its characteristics, Balena states, were in every way comparable to those of excitation of the tenth nerve. He ascribes bradycardia in influenza to relative insufficiency of the suprarenals.

Based on clinical and electrocardiographic observations, Schwartz and Jezer[13] have presented a valuable study of the cardiac mechanism underlying the Stokes-Adams syndrome. They list four main causes for the syncopal seizures: (1) stoppage of the whole heart, that is, absence of both auricular and ventricular contractions from direct or reflex stimulation of the nodes of the heart through the vagus nerve; (2) sudden interference with impulse formation and propagation in the auriculoventricular node; (3) cessation of ventricular contraction in the presence of persistent auricular activity during complete heart block; and (4) the various grades of acceleration of the ventricles with periods of reexcitation leading to transient ventricular fibrillation.

When seizures are due to standstill of the ventricles, these authors state that adrenalin may be a life-saving measure, "when used intelligently." Salzman, who felt that disturbance of adrenal function, due to the infection, was at the base of the syncopal seizures observed by him in influenza, administered suprarenal extract and claimed good results. The Stokes-Adams syndrome is found in only a small proportion of all cases of heart block. When it occurs, it adds to the uncertainty of the prognosis.

The following is a case report, seen by me during the past influenzal epidemic.

Age, 29; male, white, single. Occupation, sheep herder; family history, negative.

Chief complaint, cold of ten days duration. While working nights, patient developed a bad cold, which appeared to be of the usual type involving the respiratory tract, and was of five or six days duration, during which he continued to work. While at his work, his toes became frost-bitten and he was compelled to remain at home, during which time his cold subsided.

About ten days after the attack, when the patient was convalescent and while he was in bed, he developed what he termed a "dizzy spell." Everything would go black and he would apparently lose consciousness. The first attack occurred at about 8:00 a.m. and was followed by subsequent ones at approximately one hour intervals. Following the onset of the third attack he was brought to the hospital.

His past illnesses were measles, chicken pox, mumps, and influenza. Venereal denied. Habits: no tobacco, no liquor. Inventory of systems negative. Physical examination was entirely negative with the exception of a slowness of the beat. The pulse was twenty-two. It was obliterated on pressure.

During the course of examination, the patient's face became ashy gray. He complained of vertigo and nausea. Following these prodromal symptoms, came a loss of consciousness. The pupils dilated and the body relaxed; the skin was moist and clammy. The nails and lips were slightly cyanotic. This lasted for about twenty seconds, following which the patient was seized with a muscular spasm and the head and neck became flexed on the chest. The face became ruddy and a generalized tremor of the body followed. The hands and feet were extended in a state of tetany.

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[10] Tellgmann: Adams-Stokesscher Symptomkomplex als Folge schwerer toxischer Herzmuskelschwäche. Deutsche med. Wchnschr., 59:1923-1924, Dec. 29, 1933.

[11] Perlstein, S.: Complete Heart Block following Influenza. M. Clin. North America, 17:1623-1632, May, 1934.

[12] Balena, A.: Syndrome de Adams-Stokes post grippal. Arch. Brasil. de Med., 9:381-394, 1919.

[13] Schwartz, S. P. and Jezer, A.: Stokes-Adams Syndrome. Some Clinical and Graphic Observations on Cardiac Mechanism Underlying Syncopal Seizures. M. Clin. North America, 17:213-231, July, 1933.

There was a gradual loss of spasm and the patient returned to normalcy, none the worse for the experience excepting for lassitude, asthenia and a severe nervous depression. His memory was a little slow, especially for past recent events.

During the crisis bradycardia seemed to become more intense. His pulse rate fell to eighteen per minute, then rose gradually to twenty-four and remained there for some time. With the exception of the bradycardia, there was no modification of the pulse. The blood pressure was eighty over thirty. An ice bath was applied to the wrists and ankles, with a rise of pressure from eighty over thirty to one hundred sixteen over eighty.

During the first twenty-four hours in the hospital he had eight paroxysms. These gradually decreased and were varied in severity. He was given atropine, grains 1/100th every four hours along with barium chloride, ⅔ grains every six hours. After thirty-six hours, the pulse rate gradually increased and the atropine was omitted. His condition gradually improved, and he was discharged on his eighth day with a pulse rate of sixty.

During his hospitalization, ⅔ grain doses of barium chloride were given four times a day. On his discharge, this was continued in ⅔ grain doses three times daily and at the end of his fourth week his pulse remained at seventy. The barium chloride was discontinued at this time. Two weeks later the pulse rate was maintained at sixty-eight with no recurrent symptoms.

The old belief, still perpetuated in medical dictionaries, that the Stokes-Adams syndrome is caused by arteriosclerosis of the cerebral vessels supplying the bulbar centers, is no longer held. The cases occurring during convalescence from influenza would seem to find adequate explanation in toxic injury either to the vagus, with stimulation of its inhibitory influence on the heart action, or to the conduction pathway in the myocardium, with interruption of impulses from the auricle to the ventricle. In either case, the blood supply to the brain would be temporarily cut off, with syncope as the natural consequence.

Gonorrheal Vaginitis: Results of Treatment With Different Preparations and Amounts of Estrogenic Substance. In treating gonorrheal vaginitis, Robert M. Lewis, New Haven, Conn., and Eleanor L. Adler, New York (*Journal A. M. A.*, June 13, 1936), found that estrogenic substance in ethylene glycol given hypodermically was relatively effective when used in large doses: 2,400 international units daily. Eight hundred international units daily proved disappointing. The use of vaginal estrogenic suppositories (originally 600 international units and later 1,000) proved very effective. Clinical improvement, cessation or great diminution of discharge is nearly always noted after from fourteen to eighteen days of treatment. The administration of estrogenic substance changes the reaction of the vaginal secretions from neutral or alkaline to acid. This, the authors believe, is the major factor in eliminating the gonococcic infection. The acidity of the vaginal secretions is easily measured and provides a sure guide by which one can determine whether or not dosage is adequate. Of thirty-three consecutive cases of gonorrheal vaginitis in children treated with estrogenic suppositories, thirty yielded negative smears in an average of 20.7 days. Two required twelve weeks of treatment. Five cases are listed as recurrences. No ill effects were encountered. The method is safe.

PITFALLS IN SURGERY OF THE ACUTE ABDOMEN*

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In this discussion we are assuming that the surgeon possesses good judgment and is technically able to perform the needed operation. Many mistakes are due to lack of balanced judgment and failure to recognize limitation of technical ability. The young surgeon who assumes too much individual responsibility is inviting trouble that might be avoided by proper teamwork. The brilliant and spectacular operator is not necessarily the man of balanced judgment.

The acute abdomen is a problem that calls for accurate diagnosis and careful consideration in determining treatment. The pitfalls are many and even our best efforts may fail to prevent accidents. In a short discussion such as this only the more common problems can be considered, but in making a diagnosis it is necessary to have a thorough knowledge of all the possibilities, with an understanding of the degree of probability in the particular case. Much of our trouble in surgery of the acute abdomen is due to an incorrect or incomplete diagnosis, brought about by careless history taking. We have only to mention the acute abdominal pain of coronary disease, of lead poisoning or of locomotor ataxia to realize that a careful history will many times rule out a surgical abdomen.

In discussing the diagnostic problems we will assume that a careful chest examination has ruled out lesions above the diaphragm.

In making the differential diagnosis in an acute abdomen we should have some idea of the relative frequency of the various possibilities. Bevan, reviewing a large number of cases, gives the order of frequency as (1) acute appendicitis which, according to Eliason is responsible for 75 to 90 per cent of all acute intraperitoneal infections; (2) acute gallbladder and bile duct attacks; (3) lesions of the kidney and ureter; (4) lesions of the stomach and duodenum; (5) lesions of the female genitalia; (6) intestinal obstruction; and (7) acute pancreatitis.

The traumatic abdomen will give a history of injury and it is immediately necessary to decide if an emergency is present. Injuries to the liver, kidneys or spleen rarely require emergency surgery. Hemorrhage is always present, but usually there is plenty of time to permit of careful study of the case before operation may be necessary.

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* Read before a meeting of Tacoma Surgical Club, Tacoma, Wash., April 11, 1936.

On the other hand, perforation of a hollow viscus, with the danger of peritonitis, requires early surgical intervention. While these cases usually have extreme pain with a rigid abdomen, yet grave abdominal injuries may be without any marked symptoms for several hours. A very common mistake in these cases is to give stimulants by mouth before it is known that no perforation exists. If there is no visceral injury, the pain and the shock pass off in several hours and the patient recovers. Should a secondary relapse occur, immediate surgery is indicated, as it is a mistake to wait too long for an absolute diagnosis.

Probably the most valuable diagnostic aid in these cases of doubtful perforation is the roentgen ray. If it is possible to stand the patient in the upright position, fluoroscopy will reveal free air under the diaphragm. If the patient cannot stand up, he can be placed on his side and the free air will be found in the uppermost part of the abdomen. If no free air is present, we are pretty safe in treating the patient expectantly, but being prepared to operate at once in cases of secondary or increasing hemorrhage.

Where a ruptured urinary bladder is a possibility, as in cases of fractured pelvis, catheterize and, if still in doubt, inject a known quantity of sterile normal saline and measure the amount recovered.

Pain is the first and most important symptom in the diagnosis of the acute abdomen. This may not always be directly over the lesion, but if the pain is at the point of greatest tenderness, the location of the trouble is fixed. While the pain may be referred, we should know the usual location of pain referred from particular abdominal lesions. Subdiaphragmatic lesions may begin with pain in the shoulder. Epigastric distress is frequently the first sign of appendicitis or renal colic may be first felt in the testicle, but eventually the pain becomes localized over the pathologic lesion. Tenderness, if present, is always felt near the lesion, and gives more information as to the site of the trouble.

Case 1. A young girl, age 14, gave a history of epigastric pain followed by one attack of vomiting twenty-four hours previously. When seen the abdomen was soft, temperature 97.6°, pulse 80, and the only complaint was pain in the right shoulder. The leucocyte count was 19,950 with 72 per cent polymorphonuclear cells. Urine showed one plus albumin, three or four red blood cells and an occasional hyaline cast. Twelve hours later the blood count showed 25,880 leucocytes and there was definite tenderness in the right lower quadrant. A gangrenous appendix was removed and the pain in the shoulder disappeared.

Muscle spasm and rigidity occur when the parietal peritoneum is irritated. In perforation of the stomach or duodenum the chemical nature of the foreign material causes intense irritation of the peritoneum, bringing about very severe pain, with board-like rigidity of the abdominal muscles. On the other hand, the contents of the large bowel are not so immediately irritating and perforation here causes less muscle spasm and pain, before peritonitis supervenes.

The stethoscope should always be used in the diagnosis of acute abdomen and, as will be mentioned later, there are times when the roentgenogram is invaluable. In cases of a suspected retroperitoneal tumor, the intravenous urogram will definitely show displacement of the ureter, or lateral view may show the large bowel anterior to the mass.

When the examination has been completed, we should know whether the case is medical or surgical and whether or not it is an emergency. Except in cases of perforation the emergency is rarely so acute but that a careful study can be made. While it is better to operate on an acute abdomen needlessly than to invite disaster by ill advised delay, yet there are certain acute abdomens that are better treated conservatively.

Without entering into the discussion of the advisability of removing an acute gallbladder, I personally have no reason to regret waiting for the acute symptoms to subside before operating. We are told that from one to three per cent of the acute gallbladders perforate, but we know that a good percentage of these are well walled off, and the percentage of cases of general peritonitis from a perforated gallbladder is very small. The mortality records are generally lower in clinics where the conservative procedure is followed, and the patient carefully watched for signs of increasing peritoneal irritation.

There are certain cases of severe upper abdominal illness, with intense pain and extreme collapse, suggestive of a perforation. The pain is usually located to the left of the midline and radiating toward the left scapula. The rigidity is not board-like as in perforation of a duodenal ulcer, and while the vomiting is persistent, it does not become progressive as in bowel obstruction. The direction of the referred pain and the absence of hematuria will help rule out renal colic. It is in these cases, where the more common diagnoses are ruled out by a process of elimination, that acute pancreatitis should be suspected.

In perforation of gastric or duodenal ulcer the pain is intense and the rigidity board-like. Delay here, even for a few hours, means a rapidly mounting mortality. While the average mortality is from 24 to 45 per cent, the mortality is but 7.5 per cent in those operated on within six hours. Eliason found that in over 5,000 cases of perforation, over 50 per cent had good medical treatment for from six months to five years. He points out that "the changing symptoms mean a changing pathology. When the pain is no longer relieved by food or soda, when the intermittent pain becomes constant and with no relation to meals, and when referred pain is present, then the peritoneum has become involved and perforation threatens." Simple repair of the perforation should be the only work done in the bad risk case, but if the patient's condition permits, gastroenterostomy should be considered, as we know of no case where a second perforation of the duodenum has occurred following a functioning gastroenterostomy. On the other hand, many cases of simple closure have been followed by a second perforation. At least 20 per cent of all perforated ulcers are followed by new ulcers. All of these patients should be kept under observation a long time with strict instructions as to diet and habits.

The following case is of interest as an extreme example of recurrent acute abdomen due to ulcer formation.

Case 2. L. B., a single man, shoemaker by trade, age 23, reported February 14, 1921, with a history of stomach trouble since the age of 13, marked by attacks of severe pain every two or three months. The typical symptoms of duodenal ulcer were no longer relieved by food or soda. Gastric analysis showed a marked hyperacidity, but the roentgenogram was reported negative.

On February 16, 1921, we found a hard mass about one inch in diameter on the anterior wall of the duodenum about one-half inch outside of the pylorus. Posterior gastroenterostomy was performed. This man had an exceedingly foul mouth and refused to have any dentistry performed. In spite of careful instructions as to diet and habits, he was very careless in his mode of living.

Two years later, January 18, 1923, he reported having had three severe hemorrhages during the night, and stated that he had been having an increasing amount of pain for some months. After several weeks of observation the abdomen was again opened, and extensive adhesions about the duodenum freed. The gastroenterostomy was apparently in excellent condition, with no adhesions and no evidence of jejunal ulcer. The duodenum was opened and marked duodenitis found without gross ulceration. The abdomen was closed. He now remained free from pain and bleeding for about fourteen months.

On April 14, 1924, definite evidence of jejunal ulcer made it necessary to take down the gastroenterostomy, close the opening in the stomach, and resect an ulcerated section of the jejunum. The ulcer was found directly opposite the gastroenterostomy opening, and was perforating into the mesenteric attachment of the gut. One year later he reported feeling like a new man, but his teeth were worse than ever.

In March, 1926, he reported a return of the old pain, and gave a history of having had several hemorrhages. On May 11, an extensive gastric resection was performed, with the posterior Polya type of anastomosis. He now came under the care of one of the industrial clinics, and about two years later, he again had a perforation of the jejunum at the lower angle of the anastomosis. This was repaired.

This man lived about seven years longer, but we have been unable to get any details of his subsequent history or his death. An earlier gastric resection might have been wiser in this case. It is a good illustration of the necessity of careful attention to postoperative hygiene and diet over years of time.

Lahey found that 40 per cent of the cases with their first hemorrhage and 83 per cent with their second needed surgery. In cases of acute hemorrhage, gastroenterostomy will not prevent the occurrence of subsequent bleeding.

In considering the acute abdominal lesions of the female pelvis, we think of ruptured ectopic pregnancy, twisted ovarian pedicle or acute salpingitis. I suppose every one of us, at some time or other, has diagnosed acute appendicitis, and found instead a right ovarian cyst with a twisted pedicle or more frequently an acute salpingitis. Here, as elsewhere in the acute abdomen, the surgeon should know when to quit.

In the treatment of acute appendicitis the teachings of A. J. Ochsner, as described in his writings of twenty-five years ago, are only now being more generally followed. In 1911 he protested against "the murderous use of cathartics in cases of acute appendicitis." He definitely advises immediate operation if the infection is still confined to the appendix. However, if the infection has spread beyond the appendix and peritonitis has begun he advises, "gastric lavage, absolutely nothing by mouth, and fluids by rectum," the conservative routine known ever since as the Ochsner treatment.

Many of the errors in the treatment of acute appendicitis may have been due to the application of this treatment by surgeons who did not properly understand the reasons for conservatism. Ochsner himself states, "this form of treatment cannot supplant operation, but it can be used to reduce the mortality by changing the class of cases in which the mortality is greatest to a class of cases in which the mortality is very small after operation."

When appendicitis is found within the first thirty-six hours, it is usually confined to the appendix and immediate operation is indicated. When the appendix has ruptured and there is general and even rigidity of the whole abdominal wall without any apparent localization of the process, a simple McBurney incision with removal of the appendix can be done with very little additional traumatism. This will stop the flow of infective material through the perforation, and lessen the load of the peritoneum.

While drainage of the whole peritoneal cavity is impossible in cases of general peritonitis, I can see no harm in draining the retrocecal space, after aspirating the accumulated fluid from the pelvis. But when the abdomen presents the picture of a ruptured appendix, in which the pain and rigidity is more or less limited to the right side of the abdomen and in which there is considerable less rigidity to the left of the midline, there is probably in progress a walling off of the infected field. This case should be treated conservatively by the use of hot moist packs to the abdomen, the use of the continuous duodenal drainage, and the free use of intravenous glucose and saline. Sufficient morphine should be given for the control of pain, but it is surprising how little is needed with this treatment. After four or five days, when the abscess is definitely walled off, it should be drained through an incision placed just inside the anterior-superior spine of the ilium. Through this incision the small gut is never seen, and the abscess can be evacuated without soiling the general peritoneal cavity.

I believe the use of the right rectus incision in this type of case is often directly responsible for a breaking down of the protective wall of the abscess, general peritonitis, and a greatly increased morbidity and mortality. If the appendix can be freed without breaking the protective wall it should be removed, otherwise it should be left alone, drainage inserted, and the incision loosely closed with interrupted sutures. Tight suturing of these infected incisions is more apt to result in retained pus, and a sloughing incision with a possible ventral hernia.

Case 3. On September 27, 1934, an 11-year-old girl gave a history of very acute pain in the lower abdomen five days before. A physic given by the mother did not relieve the pain.

When first seen the temperature was 101°, there was considerable vomiting but very little acute pain. Abdomen was moderately distended, but while there was some tenderness over McBurney's point, there was no mass felt and only slight muscle rigidity. Because of pain the child would not empty the bladder completely. Rectal examination revealed marked pelvic tenderness but no mass. The white blood count was 19,250, with 90 per cent polymorphonuclear cells; there was no general peritonitis, but we felt that an abscess was being walled off, and advised against immediate surgery.

Treatment by Wangensteen nasal suction, hot packs and intravenous medication resulted in a localized abscess that was then drained one week later. Recovery was uneventful. We believe that surgery, when this case was first seen on the fifth day of illness, would have resulted in general peritonitis and a very grave prognosis.

In a large series of cases reviewed by Stanton, where cases of well marked peritonitis were operated on at once, the mortality was 42 per cent, while in a large series where conservative treatment was used and operation performed after the symptoms subsided, the mortality was 8.5 per cent.

Following drainage of the abdominal cavity adhesions form, and acute bowel obstructions may result. Or there may be undrained abscess pockets in which a loop of gut may form a part of the abscess wall. Swelling, edema and angulation of the gut may cause partial bowel obstruction. Increasing distention may precipitate a complete obstruction which must be recognized and relieved. These cases are accompanied by the severe pain of bowel obstruction, with active audible peristalsis and borborygmus at the height of the pain.

If the bowel above the obstruction is decompressed by the use of the continuous nasal duodenal suction drainage, gas and fluid are removed from the obstructed loop, distention lessens, circulation and tone returns to the bowel wall, and the continuity of the lumen of the gut may become reestablished. Immediately following the installation of the duodenal drainage tube, the pain is greatly lessened, very little morphine is needed, vomiting and nausea cease, and the apparent well-being of the patient may easily lead one into a false sense of security. This is a real pitfall, as unquestionably many cases have been lost by overlooking a mechanical obstruction that could not be cured by the relief of pressure above the obstruction.

When insufficient bowel movements occur, the only way we can surely tell if our conservative treatment is successful in reestablishing the lumen of the gut is by the use of the roentgen ray. Wangensteen's routine procedure in these cases of mechanical bowel obstruction is to roentgenograph the abdomen every twelve hours, and if at the end of forty-eight hours the bowel continuity is not reestablished, the abdomen is opened and the obstruction relieved.

If the obstruction is in the rectum or colon, with a competent ileocecal valve, the suction apparatus will be useless, and emergency cecostomy may be necessary. Many cases of obstruction due to plastic peritonitis and all cases of paralytic ileus should be handled conservatively and without surgery. The stethoscope will help differentiate the silent abdomen of these conditions from the noisy peristalsis of mechanical obstruction. Bowel obstruction, of whatever type, is not an acute emergency in the sense that immediate operation is always necessary. Following the use of the Wangensteen apparatus in cases of paralytic ileus, and most cases of adhesive plastic peritonitis, improvement will go on to recovery. However, the diagnosis must be definite, as all cases of bowel obstruction must be considered as cases of potential strangulation and, if there is any doubt as to strangulation being present, operation should be performed. Many of the pitfalls of surgery would be avoided if we were able to accurately separate the emergency surgical cases from those which would be benefited by conservative measures.

CONTRAST BETWEEN GENERAL SURGERY OF INFANTS AND CHILDREN AND THAT OF ADULTS*

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This subject is presented with full knowledge of the writer that nothing original is being offered. It aims rather to add further observations, gained from experience in general surgery of both infants and adults which show that the surgical management of infants differs from that of adults. This difference has heretofore been recognized and has resulted in the specialty "surgical pediatrics," in some centers. However, as general surgeons treating surgical conditions in infants and children, we, too, should be informed of the special type of surgical care required. With this in mind and if for no other purpose than a review, some of the differences in diagnosis of abdominal conditions, the preoperative preparation, the operative management and the postoperative care of infants and young children will be compared to similar phases of adult surgery. All references as to frequency of occurrence of various conditions mentioned hereafter are based on the writer's experience over a ten year period, and give his own and not the statistical findings of the literature.

DIFFERENCES IN DIAGNOSIS OF ABDOMINAL CONDITIONS

The abdominal diagnosis may have been made before the surgeon sees the infant or young child. When this has been made by a pediatrician or his equivalent, there should be little doubt as to its correctness. When the general surgeon first sees a possible infant surgical case, he is wise to consult with a pediatrician as this proven specialist offers invaluable aid, not only in diagnosis but also in the pre- and postoperative care. The general practitioner is perhaps less at sea in the diagnosis of a sick child than the general surgeon. The history of an infant's illness must be obtained from the mother or attendant, and its interpretation immediately presents a problem obviously different from that of an adult, who usually gives the surgeon a direct history.

Preliminary to the abdominal examination of a young child, the surgeon must realize that the approach in such a case differs from that of an adult. The child's level must be adjusted to the surgeon's and by reassurance be so approached that he will willingly allow examination of the sick abdomen. This calls for a bit of practical child psychology to gain his confidence, and this must not be betrayed later by rough palpation. In infants the abdominal examination must be made with even more gentleness, often under cover before the baby awakens.

The appendix is by far the most frequent site of intraabdominal disorder in children. In adults, although simulating appendicitis, a diagnosis of cholecystitis, perforating peptic ulcer, pancreatitis, salpingitis, ectopic pregnancy, colitis, diverticulitis of the colon, renal stones with urinary infection and pneumonia, etc., or a combination of such possibilities, may finally be made. Primary peritonitis, which is comparatively rare, in both infants and adults, has, however, been seen in four infants but not in the adult. An acute inflammation of a Meckel's diverticulum, even more rare, has been seen but once in an adult, and once associated with an intussusception in an infant.

The differential diagnosis of acute appendicitis in children must consider and exclude an acute upper respiratory infection with the so-called Brenneman belly, pneumonia with abdominal symptoms, enteritis, mesenteric lymphadentis, with or without ileitis, intussusception and pyelitis as against the previously mentioned possibilities occurring in the adult. The rareness of the adult-like findings in our experience is shown by the fact that, except for one infant with persistent jaundice who on exploration was found to show cirrhosis of the liver with congenital malformation of the major bile ducts, one large urinary calculus in the bladder of a nine year old boy and one case of cystic salpingitis, no other adult-like findings were noted. Only the latter case was confused with appendicitis. The diagnosis is, however, not always as easy as would seem apparent from the absence of the factors which confuse diagnosis in the adult, but an intelligent discussion of this phase requires too much time for this occasion. In passing it may be well to mention that mesenteric lymphadenitis with or without ileitis is usually diagnosed acute appendicitis until proven otherwise by operation.

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*Read before the annual meeting University of Oregon Alumni Association at Portland, Ore., March 2, 1936.

Besides intraperitoneal infection, one needs consider intussusception, congenital pyloric stenosis, congenital intestinal atresia, volvulus, etc. in infants, as against such conditions as gastrointestinal malignancy, uterine, ovarian, tubal, pancreatic, hepatic and gallbladder tumors, etc., found in the adult. Tumors due to splenic enlargement, intussusception and congenital pyloric stenosis have, in our experience with infants and children, been the most common, when abscesses secondary to ruptured appendices are excluded. One abdominal tumor which came under our observation proved to be a fecaloma, due to a neglected anal atresia, and was removed with an enema after anal dilatation.

Intussusception has been encountered four times in infants and but once in an adult. Congenital pyloric stenosis has been seen in twenty-four infants but not in the adult. Small bowel atresia and volvulus have each been seen twice in infants and children, but not in an adult. Enlarged spleens requiring splenectomy occurred in four children. Pelvic tumors, other than the common appendiceal abscesses or those due to deep pelvic lymph node suppuration following infected wounds of the lower extremities, are rare in infants and children. Only two noninflammatory pelvic tumors, both of which were proven to be ovarian cysts in nine and thirteen year old girls, respectively, have been seen.

The diagnosis of other closely associated abdominal conditions, namely, hernia, hydrocele and undescended testicle, is obvious in both infants and adults. They are mentioned only because the surgical advice rendered the parents concerning them does differ. A period of observation during the first year and a half of both hernia and hydrocele may be rewarded by a spontaneous cure. Likewise undescended testes may descend spontaneously by the time of puberty, or may, as some claim, be aided by antuitrin-S treatment. The possibility of gangrene of an undescended testicle due to torsion or gangrene of a descended testis due to pressure of a strangulated hernia must, however, be considered in children, whereas this has not been encountered in the adult. A congenital lymphangioma may rarely simulate hernia in a child, as was true in one of our cases. An acute hydrocele in an infant may also simulate a hernia or may be complicated by an after-lying hernia.

In general, the treatment of these conditions in infants differs from adults in that active treatment of such may conscientiously be advised at once in adults, but infants and children deserve special study of each case before surgery is advised. If hernial reduction cannot be maintained or strangulation presents itself, herniotomy should be done immediately irrespective of age. A concomitant undescended testis should be transplanted at the same time, and for this the Törek method is preferred.

Retroperitoneal tumors in infants and children are nearly always highly malignant mixed cells (Wilm's) tumors of the kidney which soon prove fatal. Benign congenital cystic kidneys are encountered but rarely in infants. In adults, on the other hand, the most common retroperitoneal disorders are those due to hypernephroma, hydropyonephrosis, perinephritic abscesses, cold abscesses and bilateral congenital polycystic kidneys, etc. Four of the mixed cell kidney tumors, all fatal, have been seen in children and none in the adult. One unilateral benign congenital hydronephrotic kidney has been encountered in a six months old infant.

From the foregoing, which offers only a comparative study of abdominal diagnosis, it is obvious that the surgeon's thoughts must be directed along quite different channels when dealing with infants and young children as compared to adults. Appendix and hernia operations number far ahead of all other procedures in abdominal surgery of children above the age of three. In young infants the most frequent intraabdominal surgical procedure required in our experience was that for congenital pyloric stenosis.

PREOPERATIVE PREPARATION

The preoperative preparation of an infant or young child calls for the ability of a pediatrician to bring the little patient's general condition into the best possible state before operating. An abundance of tissue fluids is necessary preoperatively for every patient, whether infant, child or adult, and this should be supplied before rushing the patient to the surgery. An adult weighing 72 kgm. (158.4 lb.) is considered to be crowding fluids at least mildly when given 3000 cc. or one twenty-fourth of his body weight daily. An infant weighing 4 kgm. (8.8 lb.) requires at least 600 cc. of fluid daily preop-

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1. DuBois, E. F.: Basal Metabolism in Health and Disease, p. 112, Lee & Febiger, Philadelphia and New York, 1927.

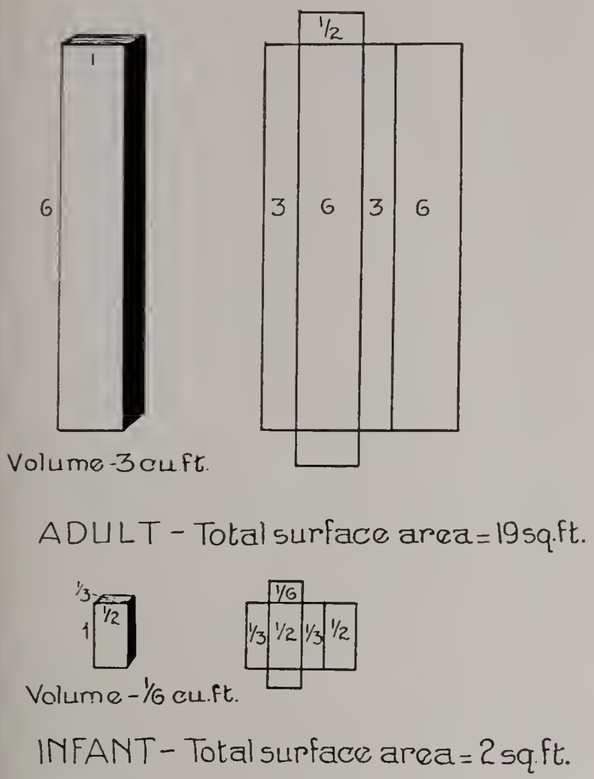
1
6
Volume-3cu.ft.
1/2
3
6
3
6
ADULT - Total surface area=19sq.ft.
1/3
1/2
1
Volume-1/6 cu.ft.
1/6
1/3
1/2
1/3
1/2
INFANT - Total surface area=2sq.ft.

Fig. 1. Diagram showing relative increase in surface area with decrease in volume.
1/18 of adult surface = 1.05 sq. ft.
Actual surface area of infant = 2 sq. ft. or proportionately twice the adult surface area.
DuBois calculation of 72 kgm. adult = 1.85 sq. m.
DuBois calculation of 4 kgm. baby = .22 sq. m. Proportionately twice adult surface.
Pfaundler measurement for 2 kgm. infant = 1.16 sq. m., proportionately thrice adult surface.

eratively or the equivalent of nearly one-seventh of the babe's body weight. By the same ratio an adult would require an intake of 10,000 cc. The fact that the surface area[1] of a 4 kgm. infant is proportionately twice that of a 72 kgm. adult, helps to explain why a proportionately greater amount of fluid must be supplied to infants as compared to adults (fig. 1).

Opiates given infants at any time must be carefully directed in each individual case by the surgeon. The use of a routine preoperative morphine-atropine hypo, so frequently relegated to the nurse in the case of adults, may lead to difficulties in children where idiosyncrasies to morphine are not uncommon. Since marked depressing effects may follow overdoses of opiates, it is safer for the surgeon to order the proper dose of atropine only for the preoperative hypodermic.

In spite of the fact that status thymicolymphaticus has often been minimized and ridiculed by others, the writer is of the opinion that its presence or absence should be proven by a fluoroscopic mediastinal check-up in infants under one and one-half years of age. If an abnormal shadow is found but urgent surgery is indicated, the surgeon is at least forewarned. On the other hand, if the case is not urgent, the status thymicolymphaticus warning should be heeded and roentgen therapy be administered before attempting elective surgery. Another roentgen study should be made after two weeks to note results. The possibility of a hilar and mediastinal tuberculosis must also be considered and, if such cannot be ruled out, roentgen therapy should not be given, as an acute fulminating miliary tuberculosis may be induced by irradiation of such tuberculous lymph nodes.

The recent work of Rowntree[2] and others makes it appear that those calling status thymicolymphaticus a myth or a superstition will need to show more proof than statistics from hospital records to refute the experimental work of the above investigators. These workers have demonstrated definite physiologic activity from thymus extract. They have shown that heart block can be produced by injections of thymus extract and that sudden death may follow larger doses. The writer recognizes that the adrenal degeneration, coexisting with the generalized lymphadenopathy of which thymus enlargement is only a part, may be important factors in this condition, but contends that a fluoroscopic check-up of the mediastinum offers a valuable aid in the detection of this little understood yet annoying condition. It may be more than annoying and may prove fatal as was true in four of our cases. All of these were examined by a competent pathologist who reported status thymicolymphaticus and no other cause of death.

The anesthesia problem in surgery of critically sick infants and young children demands special consideration as compared to adults. A discussion of the endless varieties of basal and general anesthetic preparations offered the medical profession covers too broad a field for the space allotted. Suffice to say, that they should be administered by medically trained anesthetists, regardless of the age of the patients. This desideratum, however, is lacking. The dearth of medically trained anesthetists is mentioned only to stress the point that, if such service is desirable in any field of surgery, it is doubly essentials for infants. Open-drop ether anesthesia is considered the safest general anesthetic and, when given by a nurse anesthetist accustomed to the tiny cases, causes the surgeon no great worry. However, when this does not prevail, the surgeon himself must be on guard, noting the type of respiration and degree of cyanosis and help guide one who may only occasionally anesthetize children, though experienced with adults.

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[2] Rowntree, L. G.: Thymus Gland, J. A. M. A., 105:592-595, Aug. 24, 1935.

Local infiltration anesthesia, because of its safety, is the anesthetic of choice for infants as well as adults, but its use is limited even more in infants because the babies are unable to cooperate with the surgeon. The writer uses local novocaine infiltration anesthesia routinely in all congenital pyloric stenosis cases, since adopting a high right transverse abdominal, evisceration-proof incision, and feels that these starving babes are given a better chance to survive than if intoxicated by ether. Chloroform should not be used on any starved baby.

Another preoperative preparation that must be attended to and which is often neglected in adult surgery, is assurance of a warm or mildly hot surgery for tiny infants. This, as well as local heat before, during and after operation, is again of more importance because the surface area of a 4 kgm. infant, as previously mentioned, is proportionately twice as great as that of a 72 kgm. adult, and thus offers twice the heat radiation loss. Finally, the surgical nurse must be instructed to have on hand smaller sponges and intraabdominal packs, finer ligature and suture material, and the surgeon's armamentarium must have been equipped with instruments suitable for infant rather than adult surgery.

OPERATIVE MANAGEMENT

During the actual performance of operations on infants it is well to remember that they may become alarmingly sick in a very short time and may even die very quickly. Fortunately, they may rally with the same rapidity. Their life mechanism is very labile and the surgeon is wise to balance the operative procedure with their lowest resistance rather than their greatest reserve. He must keep in mind the advantage of multiple stage operations, and in certain types of surgery plan such ahead routinely. He must accustom himself to work through a smaller but carefully chosen incision and refrain from making an adult slash in an infant abdomen.

He must be more watchful of hemorrhage and must not compare blood-loss of an infant to that of an adult. He must remember, instead, that one cubic centimeter of blood-loss in a 4 kgm. infant is equivalent to eighteen cc. of blood-loss in a 72 kgm. adult (fig. 2). Thus, an ounce (30 cc.) of blood-loss in such a babe is equivalent to a pint (540 cc.) of blood-loss in the adult. Manipulation within the tiny peritoneal cavity must be done with even more gentleness than when dealing with an adult. The surgeon may also need remind himself or his assistant that they are resting too heavily upon the tiny, unconscious and fatiguing patient. He must remember in closing an abdomen that his patient may not comprehend the admonitions "no straining," "don't meddle with your wound," "don't crawl around in bed," etc. after leaving the surgery. Therefore, he must not only suture the wound meticulously but must apply proper restraints immediately after the operation and not as an afterthought when damage has been done by the irresponsible little baby.

POSTOPERATIVE MANAGEMENT

The postoperative care of infants and children obviously demands greater watchfulness of both surgeon and nurses than is required in the care of intelligent adults. A sustained effort must be made to maintain the confidence previously gained as an aid in the aftercare of the young child. Again, the ability of a pediatrician is necessary to properly

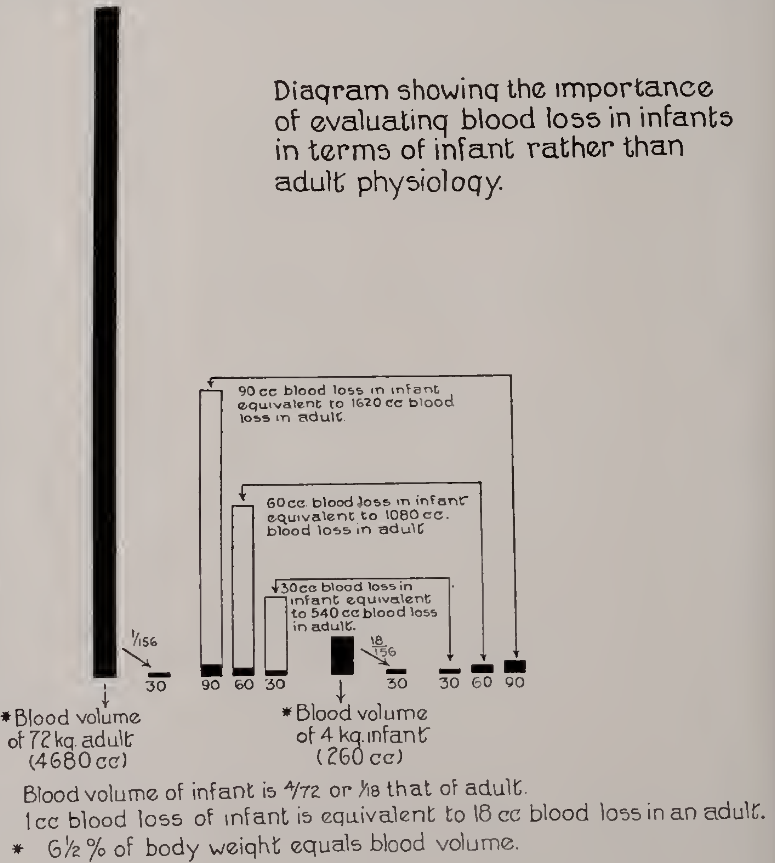
Diagram showing the importance of evaluating blood loss in infants in terms of infant rather than adult physiology.
90 cc blood loss in infant equivalent to 1620 cc blood loss in adult.
60 cc. blood loss in infant equivalent to 1080 cc. blood loss in adult
30 cc blood loss in infant equivalent to 540 cc blood loss in adult.
1/156
30
90
60
30
18/156
30
30
60
90
* Blood volume of 72 kg. adult (4680 cc)
* Blood volume of 4 kg. infant (260 cc)
Blood volume of infant is 4/72 or 1/18 that of adult.
1 cc blood loss of infant is equivalent to 18 cc blood loss in an adult.
* 6½ % of body weight equals blood volume.

Figure 2

conduct the infant feeding program. An adequate fluid intake must again be established and this problem differs from that of adults because infants cannot cooperate with the fluid-forcing regime. To offset this, gavage may be more easily given nonvomiting infants than adults. Venoclysis, so easily administered to vomiting or noncooperating adults, is not practicable for vomiting infants.

Proctoclysis likewise is more unsatisfactory in infants than adults because the babies more often expel the rectal fluids. Thus when vomiting interdicts fluids by gavage and proctoclysis is expelled, hypodermoclysis, the least pleasant of all fluid-forcing methods, must be resorted to more frequently in infants and children than adults. Here added caution is indicated in infants to prevent overdistension and subsequent sloughing of the skin which would not be tolerated by conscious adults. Isotonic glucose (5 per cent) rather than oft repeated normal saline should be used to prevent salt edema.

Transfusions are of equal value in the surgical care of both infants and adults but their performance may be more difficult in the former. Exposure of the tiny veins by dissection is more frequently found necessary in infants. On the other hand, the jugular or scalp veins are found unsuitable in very young infants. The fontanelle transfusion method may be resorted to but this is not recommended as a routine procedure. Space does not permit a comparison of the postoperative complications which often bewilder the general surgeon caring for either infants, children or adults.

SUMMARY

The foregoing review has aimed to emphasize that surgery of infants and children differs from that of adults, in that infants and children require the following:

1. More patience and tact during the examination, and a definite pediatric chain of surgical thoughts during the diagnosis.
2. More personal attention to the details of preoperative preparation which have to do with fluid intake, status thymicolymphaticus, opiates, anesthesia, warmth of operating room and patient, special pediatric instruments and special pediatric surgical set-ups.
3. A more refined technic during abdominal operations that calls for more attention to the choice of an incision least likely to reopen, more effort to approach near-perfect hemostasis, more emphasis to avoid weight bearing by surgeon and assistant that embarrasses respiration, avoidance of intraabdominal manipulation that is rough or too extensive, more ready adoption of multiple stage operations by choice or necessity, and more prompt application of restraints to avoid postoperative wound damage.
4. More watchful attention by surgeon and nurses during postoperative care, plus the ability of a pediatrician for the proper management of infant feeding and medication.

PROPRIETARY MEDICINE EVIL*

E. D. Johnson, M.D.

KLAMATH FALLS, ORE.

Today I desire to call your attention to one of the lesser cogs in the wheel of scientific medicine, namely, the ancient art of prescription writing. Time was when all recognized physicians depended solely upon the known drugs, combinations of and dosage found in the United States Pharmacopeia. It was taught in the schools and after graduation the physician based all of his prescription writing upon it. Customs and practice have changed and it is for you to say whether to the benefit of the medical man.

A recent survey was made among the drug stores of several cities in Oregon and an estimate obtained that approximately 87 per cent of prescriptions coming to these stores called for proprietary preparations. The druggists themselves lament the fact of having spent four years in a school of pharmacy to prepare themselves to soak the label from the original bottle in order to put your directions for dosage upon it.

This eventually can have but one result. Through you the pharmaceutical houses are acquainting the general public with the trade name of their remedies and your patients are finding out just what they are used for and, when the time comes, the manufacturers can go directly to the public with sufficient evidence from the profession to justify any claim they can wish to make.

One of the causes for the high cost of medical care that you hear so much about is the fact that physicians have deserted the pharmacopeia for the simple, easily filled, expensive proprietary preparations that fill the shelves of your druggist.

I fear the time when our patients will feel they no longer need consult their doctor for a prescription but will go to the druggist for one of the remedies you formerly prescribed, already prepared. When that time comes, the medical man will have no one to blame but himself.

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* President's address, read before the forty-fifth annual meeting of Southern Oregon Medical Society, Klamath Falls, Ore., May 2, 1936.

HYDROCELE OF THE CANAL OF NUCK

REPORT OF CASE AND DISCUSSION OF INGUINAL HERNIA *

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Recently, while operating on a young woman, age 21, whose complaint had been diagnosed as an inguinal hernia, I found a cystic tumor just below and internal to the external abdominal ring. This cyst was irregularly spherodial, and measured roughly two inches in diameter. It was readily freed from the surrounding structures, to which it was attached by loose areolar tissue. It was then observed that the external ring was very small and tight. There seemed no evidence of a hernial sac. The cyst might have been removed at this stage and the wound closed. It was decided to open the sheath of the external oblique, and on doing so there was found alongside the round ligament a well developed and patent processus vaginalis, or canal of Nuck, connected to the cyst. The internal inguinal ring readily admitted my index finger. The cyst, together with the vaginal process and a small portion of the round ligament, were removed, and a Bassini repair done.

I must admit that it is the first case of this kind that I have encountered. In displaying it to several surgeons I have failed to gain much help. In scanning several books on surgery and gynecology I found scant mention of it. Imagine my surprise when I found a notation by Coley,[1] written in 1908, to this effect:

> "One of the most frequent sources of error in the diagnosis of inguinal hernia in the female is the presence of a 'hydrocele of the canal of Nuck.' This condition is often, however, associated with inguinal hernia, and the same operative treatment is indicated in both conditions. In hydrocele of the canal of Nuck there is a tumor to be found just outside of the external ring, which is dull on percussion, globular in shape, symmetric in outline, dense, elastic, irreducible and usually much more tender on pressure than a hernia. The history will usually reveal the fact that the swelling was at no time reducible.
>
> "The condition is by no means as rare as one might suppose from the literature on the subject. Wechselmann found only 62 reported cases. In the *Annals of Surgery*, July, 1892, I published 14 cases observed at the Hospital for Ruptured and Crippled, and since 1890, 160 cases have been observed at this hospital."

It is but a step from this case to the discussion of inguinal hernia, something about which we all know a great deal. A glance at the literature of the past forty years reveals a heap of contributions that might well be classified as a "bumper crop." The subject has been tackled over and over again from almost every conceivable angle. I must confess that I have nothing new to offer to you. But like the simple golf swing, we all seem to have our particular ideas about what it is and how it is to be done, yet most of us fail somehow always to duplicate the results of our professional as closely as we might desire. Perhaps, then, a short discussion of inguinal hernia may be of sufficient interest to promote a discussion amongst ourselves.

Inguinal hernia may be indirect, direct or a mixture of both. In the indirect hernia, so called because it does not push directly through the abdominal wall but rather follows the inguinal canal, the internal ring plays a very important part. In direct hernia the internal ring has nothing to do with the hernia.

The internal abdominal ring is ordinarily no more than an exit for the spermatic cord through strong fascia and thick muscle tissue. A similar arrangement is seen in many places about the abdomen, such as the umbilicus and the spaces that allow the entrance of veins, nerves and arteries. Several years ago in a discussion of lateral ventral hernias[2] I endeavored to show that these occurred on a basis of weakness at the entrance or exit of such structures, combined with increased abdominal pressure.

There is a slight difference in the internal ring that must be explained. Mother Nature planned trouble in this location by making the opening large enough for the descent of the testicle which is larger than the spermatic cord, and then dragging down a portion of the peritoneum along with it. Fortunately in most cases she patched up the job by obliterating this processus vaginalis and sealing the peritoneum flush with the inner abdominal wall. In a certain percentage of cases she left the job wholly or partly undone. In any event the weakness of the muscle tissues per se has nothing to do with the case. It is the size of the opening between the muscle fibres and the weakness of the transversalis fascia beneath that allows a hernia to develop here. A hernia emerging at this point, potential or actual, in my humble opinion is in most cases a congenital affair within the strict meaning of the word, although it may not be detected until long after birth.

Recently a messenger boy of 20 was thrown from his bicycle in a collision. In hurdling the handlebars he was struck in the groin. There developed immediately a large scrotal hernia. He had been carefully examined previously and there was no evidence of a hernia. At operation a few days later a large thick sac was found extending from the internal ring to the testicle. The internal ring was large but showed no evidence of any tearing of muscle. The neck of the sac was a small ring of thick and indurated tissue. Here is an example of a potential hernia that was acquired but was actually a congenital one.

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* Read before a meeting of King County Medical Society, Seattle, Wash., May 4, 1936.

[1] Coley, W. B.: Keen's Surgery, Vol. IV, p. 58. W. B. Saunders Co., Philadelphia, 1908.

[2] Holloway, J. K.: Spontaneous Lateral Ventral Hernia. Ann. Surg., 75:677-685, June, 1922.

A direct inguinal hernia, on the other hand, is no such complicated affair. It is almost always acquired, and usually has nothing to do with the internal abdominal ring. It makes its appearance by a direct thrust through the transversalis fascia in Heselbach's triangle by virtue of weakness or scarcity of muscle or tendinous tissues in this area. The arrangement of the muscular tissues has something to do with this. The internal oblique and transversalis are placed at angles to each other. Consequently, in cases with very poorly developed muscles or in advanced age with loss of strength and weight plus stretching out of the abdomen, the tissues become thin and easily split, allowing a bulging of viscera through a broad diverticulum of peritoneum. As opposed to indirect hernia, "the basic factor is not the sac or the contents but the defect in the wall, floor or roof that allows protrusion of abdominal contents."[3] These contentions are borne out further by a glance at Berger's chart of incidence of inguinal hernia in 10,000 cases.[4]

At birth sixty-five of each thousand children have hernia. At five the ratio is higher, but above that age until thirty the decrease in the number is very decided. After thirty most of the acquired and occupational hernias develop. Masson holds that, if such herniae present at a location where a peritoneal canal once presented but which was closed completely at the time of birth or sometime later, then it must be considered as an acquired hernia.

Loss of muscle tone and increased tension, one or both, play an important part in the development of a hernia. The relationship of intraabdominal pressure and resistance of the abdominal wall are the factors involved in the development of a hernia, whether it follows shortly upon sudden trauma or prolonged pressure upon gradually weakening structures.

This discussion is of no value or particular interest aside from the practical application of a proper method to insure a cure. I shall dismiss the truss with this comment. In very young children and infants, where the internal ring is not enlarging, a cure is sometimes effected by the use of truss. In certain seniles and individuals who are constitutionally unfitted for surgery a truss may be used to decided advantage and comfort. In all other cases the ideal treatment is surgery. Too often we see a man whose hernia has been supported by a truss through his most vigorous years of life only to find that his hernia has enlarged, slipped and defied retention at an age when disease or debility makes surgery inadvisable or impractical.

As I have no experience with the so-called injection treatment I cannot justly pass upon its merit. In the hands of certain experienced enthusiasts the results are encouraging. Since the arrival of aseptic surgery about 1890, the surgical treatment of inguinal hernia has been the method of choice. Quite early three basic principles were recognized that are still considered fundamental in the repair of hernia: (1) dissection and free exposure of the inguinal canal, (2) high extirpation of the hernial sac, (3) reconstruction of the inguinal canal.

Masson and others recommend removal of the cord and testicle in certain aged individuals with large or recurrent hernias as a means of permitting complete closure of the canal. This is seldom indicated. Aside from this somewhat radical procedure in the male, there are in general three methods of dealing with the cord: (1) intraaponeurotic transplantation of the cord, as described by Marcy and Bassini, (2) nontransplantation of the cord, as described in the Andrews I, and the Coley-Ferguson operation, (3) extraaponeurotic transplantation of the cord, as devised by Halsted and modified by Andrews and others.

In the early days of aseptic surgery many schemes were employed to repair inguinal hernias. For the most part they sought only the partial or near obliteration of the sac itself. Difficulty was realized in securing and maintaining the obliquity of the inguinal canal and of the necessity of a small internal ring. In 1881 Marcy of Boston, a pupil of Lister, conceived the idea of transplanting the spermatic cord. His early communications were so lacking in detail that the glory fell upon Bassini of Padua. In 1888 he published the description of the operation that fulfilled the cardinal principles of repair of hernia. The utilization of these principles has given by far the best results, superior to those of any other single procedure, in the hands of the surgeons at large. Today the Bassini operation is used universally in the repair of simple oblique and small direct hernia, and a modified Bassini may be employed in many others.

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[3] Lewis, D.: Practice of Surgery, p. 2. W. F. Prior Co., Herstown, Md., 1929.

[4] Masson, J. C.: Collected Papers, Mayo Clinic, p. 1071, 1900.

This procedure is contraindicated in certain cases: (1) those associated with nondescent of the testicle, (2) in infants it seems unwise to elevate the cord lest it suspend the testicle too high in the scrotum, (3) it is unnecessary to disturb the round ligament in women with oblique hernia.

There are excellent surgeons who feel that no such extensive procedure is necessary to repair inguinal hernia. Russell holds that oblique hernia can be cured by adequate obliteration of the sac alone.[5] Hull and Taylor have maintained the same idea. The Bates operation described in 1913 offers a different approach but in the main offers the same solution.[6] Personally I am inclined to agree with them, but have never had the courage of conviction sufficient to allow me to depend upon such a limited procedure. Others hold that in addition to this the transversalis fascia should be closed about the ring or sutured to Poupart's. It has been estimated that this procedure alone or even the original Kocher operation, will cure as high as 97 per cent of indirect hernias, but such reports have not been generally accepted.

In recurrent and in some direct hernias it is felt that additional security is needed. An extra-aponeurotic transplantation seems of definite value. Halsted pioneered the procedure in 1889 by subcutaneous transplantation of the cord, bringing it straight through the aponeurosis of the external oblique, suturing the latter beneath the cord. In 1895, Andrews described two methods, both of which have borne his name.[7] One that he called anterior imbrication was a nontransplantation method, all the muscles including the aponeurosis of the external oblique being sutured to Poupart's ligament in front of the cord. The other method consisted of suturing the upper leaf of the aponeurosis beneath the cord and the lower leaf over it to the upper leaf, thus placing the cord interaponeurotically. Many modifications of this procedure have been offered. Ferguson's method, described in 1899, left the cord undisturbed.[8] The internal oblique and transversalis are sutured to Poupart's. The edges of the external oblique aponeurosis are overlapped and sutured and the external ring restored. If the conjoined tendon is deficient, the rectus sheath is opened and the rectus muscle drawn down and sutured to Poupart's.

In 1924 Gallie and LeMesurier published their experimental results with living sutures, using fascia lata strips in the repair of hernias.[9] Since then this idea has gained considerable popularity. In general the plan of the Gallie operation resembles that of Bassini, but strips of fascia lata are used to reinforce or substitute catgut sutures in reconstructing the inguinal canal floor. Sutures may be placed in two rows or layers. This operation seems particularly indicated in adults with long standing or recurrent hernias, where the obliquity of the canal has been lost, particularly where the quantity and quality of the internal oblique and transversalis muscles are insufficient.

There are a few points in the technic of hernia that I should like to emphasize. Adequate exposure and clean dissection often spell the difference between an easy and a difficult operation. Too often it seems to me that inadequate exposure hampers tremendously the ease and grace of the operation, and leads an operator into difficulty in what should otherwise be a very simple surgical procedure. Careful hemostasis. Herniotomy should be well-nigh a bloodless operation. A bloody, wet field obscures vision and confuses the operator. Uncontrolled oozing invites infection and failure. Too vigorous or too much inquisitiveness in the region of the deep epigastric vessels may cause considerable bleeding that is most difficult to control, and a hematoma that is impossible to obliterate.

I am convinced that the dissection of the sac should always be carried to the preperitoneal fat in indirect hernia, that in addition the sac should be twisted to secure an additional pull down, that this should be followed by ligation and transfixion with subsequent transplantation of the stump at some distance above and median to the internal ring. I believe that the procedure not only removes the original sac in its entirety but that it may also plicate the transversalis fascia over the internal ring. In direct hernia small sacs need not be enfolded, not resected. In larger direct hernias the sac should be opened, cut away, and repaired. In such cases considerable caution must be used lest some visceral damage be done. In the so-called sliding hernia the bladder or large intestine may be so intimately blended with the so-called sac that they may easily be injured if unrecognized. Following infolding or repair of the sac the transversalis fascia should be repaired if possible.

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5. Russell, R. H.: Inguinal Hernia and Operative Procedure. Surg., Gynec. & Obst., 41:605-609, Nov., 1925.
6. Bates, U. C.: New Operation for Cure of Indirect Inguinal Hernia. J. A. M. A., 60:2032-2033, June 28, 1913.
7. Andrews. E. W.: Hernia by Watson, L. F., p. 273. C. V. Mosby Co., St. Louis, 1925.
8. Ferguson, A. H.: Oblique Inguinal Hernia. Typic Operated for Radical Cure. J. A. M. A., 33:6-14, July 1, 1899.
9. Gallie, W. E. and LeMesurier, A. B.: Living Sutures in Treatment of Hernia. Canad. M. A. J., 13:469-480, July, 1923.

I believe that the lower end of the canal floor should be most carefully repaired. The first suture in this direction should include a large healthy bit of conjoined tendon and at times even a bit of the anterior rectus sheath, and this should be sutured to the periosteum of the pubic spine. Such a step does two things; it helps stretch the muscles downward as well as outward, which is much to be desired. Furthermore it absolutely obliterates an open angle at the lowest part of the wound, which is the usual site for recurrence.

Splitting the sheath of the rectus near the median raphé for the length of the inguinal canal, *after repairing the floor of the canal,* is of definite advantage and value. Even under spinal anaesthesia, which I feel is an ideal anesthetic for hernias, when relaxation is most complete, one must be impressed with the tension that develops when the conjoined tendon and part of the internal oblique are sutured to Poupart's ligament. In plastic surgery one of the most important features is to maintain apposition without tension. I know of no other procedure that will produce such a nice relaxation of approximated structures as splitting the rectus sheath. The defect left in the anterior rectus sheath is intimately sealed and reinforced by the aponeurosis of the external oblique. I claim no originality for the procedure although I should like to help popularize it. In 1898 Halsted advocated using a portion of the rectus sheath and muscle when the conjoined tendon is weak. Wolfler advocated it in 1892. Neither emphasize the section of the rectus sheath after the repair of the floor has been made. In my experience and in a perusal of much literature I find no instance of undue weakening of the abdominal wall developing upon the site of this incision. My records are incomplete, and I have no way of knowing the ultimate fate of many of my patients. Among those I have had the opportunity to observe for over a long period I have not observed a recurrence of a hernia where a combination of these principles has been used.

Carotenemia in Diabetes. Walter Heymann, Cleveland (*Journal A. M. A.*, June 13, 1936), states that the blood serum carotene curves obtained in ten diabetic children after the administration by mouth of carotene in oil were distinctly different from those obtained in twelve nondiabetic, healthy children and demonstrated that the metabolism of carotene is interfered with in diabetes. The carotene content of the blood, when it was once increased in the diabetic patients, failed to show the normal decline and remained elevated or even kept on increasing for from ten to fourteen days after the administration of the carotene in oil had been discontinued.

INITIAL COLD WATER TREATMENT FOR BURNS *

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Many lay people know that immediate immersion of a freshly burned finger or hand in cold water will result in immediate relief of pain. It is this fact which has led to the reinvestigation of our treatment of burns and to the institution of the cold water treatment of the initial phase of burns.

In superficial burns of the skin there is only slight irritation of the cells of the epidermis and perhaps some necrosis of the surface cells. With more severe burns coagulation necrosis occurs, involving the cells of the epidermis and perhaps cells deeper within the skin, including the corium and subcutaneous tissue to a variable depth. Immediately following this heat necrosis of the cells, there is a marked capillary dilatation in the surrounding tissue, such as occurs in the initial stage of any inflammatory reaction. The skin becomes red within a few seconds. Small lymphatic channels likewise dilate and there is some degree of extravasation of fluid or in other words, edema. At the very margins of the necrotic tissue proper, microscopic thrombi form within the capillaries and small vessels. Where the burn has been only superficial, small vesicles or bullae are formed. After this initial stage the changes progress essentially in the manner of an inflammatory reaction in response to any cause. The healing and restitution of the tissue will progress as it would after any simple wound, and if infection should supervene, the reaction is correspondingly modified as it would be in the course of any infected wound. If the tissue has been sufficiently damaged, gangrene and sloughing will occur.

It is rather remarkable that Nature's response to tissue damage, whether caused by burning or by freezing, is essentially the same, and in describing the histopathologic changes following frost-bite or freezing, one might repeat the above paragraph almost word for word. In the case of excessively low temperatures, the necrosis is produced by freezing crystallization of fluid elements of the tissue, including the protoplasmic substance within the cell envelope proper; but aside from exact mechanism producing the necrosis, the histologic changes otherwise, when the circulation is restored, are identical with those following the necrosis produced by burns.

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* Read before a meeting of King County Medical Society, Seattle, Wash., April 20, 1936.

For many years it has been the custom to treat frost bitten extremities by initial cold applications, either by rubbing with snow or with cold water. It has been recognized that, following this method, the resultant pain and later necrosis or gangrene of the tissue will be less extensive than if the extremity is treated by warm applications or by the rapid restoration of temperature. Originally this was empirical knowledge. It has since been well determined that, if frost bitten tissue is thawed out gradually, there is less pain, less edema, and in fact less gangrene of the tissue than if the thawing is carried out rapidly.

The gradual restoration of the circulation results in better health of the tissue, in all probability because the microscopic bursting of capillary walls and the edema itself are less intense. The pain from tissue damaged either by burning or freezing is due not only to damaged terminal nerve filaments in the skin but likewise to the intense edema pressure and distension of the tissues during the inflammatory response.

In frost-bite, when the tissues begin to thaw with returning circulation, pain often becomes extreme. The immersion of the frozen part in cold water at this time will result in great amelioration of this pain, and with careful, gradual elevation of the water temperature over a period of several hours, the pain of the thawing process may be reduced to a minimum. The tissue damage likewise appears to be greatly lessened. No exact temperature record of the water need be kept. Pain is a reliable guide to the temperature of the water which can be used and to the speed with which the tissue can be thawed out.

The average burn differs from the average frostbite or frozen extremity in that the damage in the latter case usually extends deeper and in some cases the entire thickness of a hand or foot may be frozen to the extent of subsequent gangrene. But aside from this difference, the histopathology of burns resembles that of frost bitten tissues and it seemed only logical to treat them in a similar manner.

DETAILS OF PROCEDURE

When the patient is seen soon after the accident, cold water is applied to the burned tissue after as much clothing as possible has been removed. Ordinary tap water is used. In the case of small burned areas or a part of a single extremity, cold wet dressings are applied or the parts submerged in basins containing cold water. In the case of extensive burns, the patients are placed in a tub. When the face and body are both involved, cold water dressings are applied to the face while the rest of the body lies submerged in the tub. The immediate results are spectacular. Patients with severe pain are relieved within a few seconds without the use of an opiate. Patients in early shock often respond promptly with no other measures, the weak and feeble pulse becoming slower and stronger, the blood pressure rising, and the patient's color resuming a normal appearance.

It is well known that severely burned patients may pass into shock quite rapidly, and that, if the surface burn is extensive, the patient is not likely to survive the shock of the first twenty-four hours. A burn involving one-half of the body surface has usually been regarded as fatal, and the fatal outcome is the result primarily of the shock. Our ideas regarding surgical shock and that associated with burns have undergone extensive revision in recent years. Much good work in the field of animal experimentation has contributed to this. It would be out of place here to review this work extensively because some of the phases of our knowledge of shock are still incomplete and some of the recent explanations are still controversial, but a tentative if somewhat arbitrary summary can be made for purposes of explaining the results obtained in this work.

"The primary phase" of shock is due to the pain of the direct nerve injury with its resultant reflex vasodilatation. The more important type of shock, however, is the so-called "secondary" shock which is due to loss of fluids from the circulating blood. In the case of burns, this has not been sufficiently appreciated. The work of Underhill[1] and associates and also of Blalock[2] has done much to bring this to our attention. This fluid loss rather than any absorption of toxic products from burn tissue accounts for the severe and frequently fatal shock of extensive burns.

Whether the shock in the initial phase (the first twenty-four hours) of burns is due to fluid loss or in part to pain, it is affected by the extensive capillary dilatation in the burned tissue itself, because without this capillary dilatation and extravasation of fluids, neither the loss of fluids nor the severe pain would be very marked.

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[1] Underhill, F. P., Kapsinow, R. and Fisk, M. E.: Studies on Mechanism of Water Exchange in Animal Organism; Extent of Edema Fluid Formation Induced by Superficial Burn. Am. J. Physiol., 95:325-329, Nov., 1930.

[2] Blalock, A.: Experimental Shock; Probable Cause for Reduction in Blood Pressure Following Mild Trauma to Extremity. Arch. Surg., 22:598-609, April, 1931.

The above reasoning is a theoretical explanation of the results obtained, and awaits more accurate demonstration before we are sure that it is correct. The results, however, are no longer in doubt. Pain is relieved and shock is prevented or lessened, if not too far advanced when the patient is first seen.

If some time has elapsed before the patient is first seen, so that the state of shock is rather far advanced, other shock therapy is started in addition to the cool water. Fluids by mouth are given immediately, and a transfusion of blood is started while the patient is still in the tub. If a donor is not available, intravenous acacia is used.

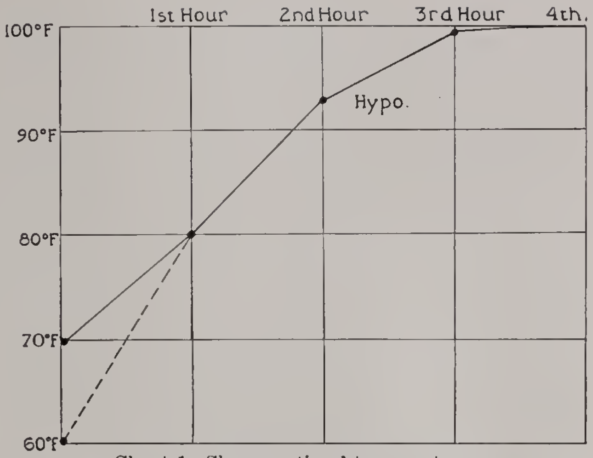

Chart 1. Shows optimal temperature.

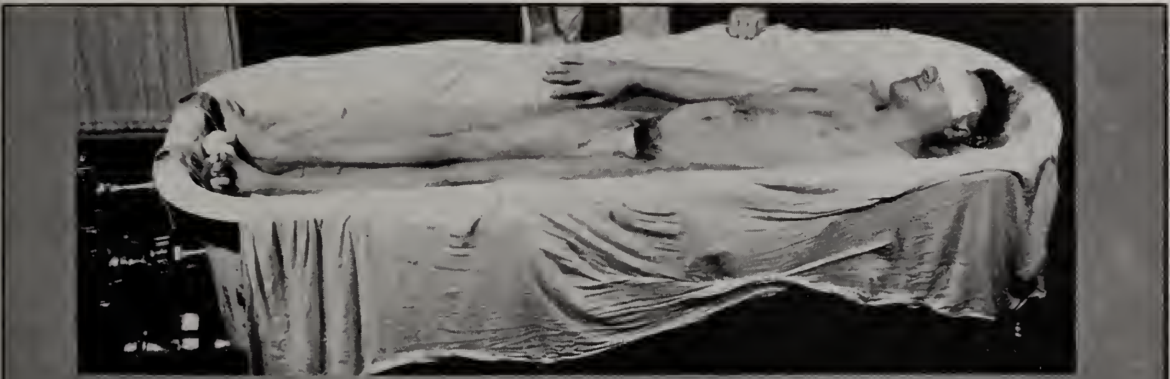

Fig.1

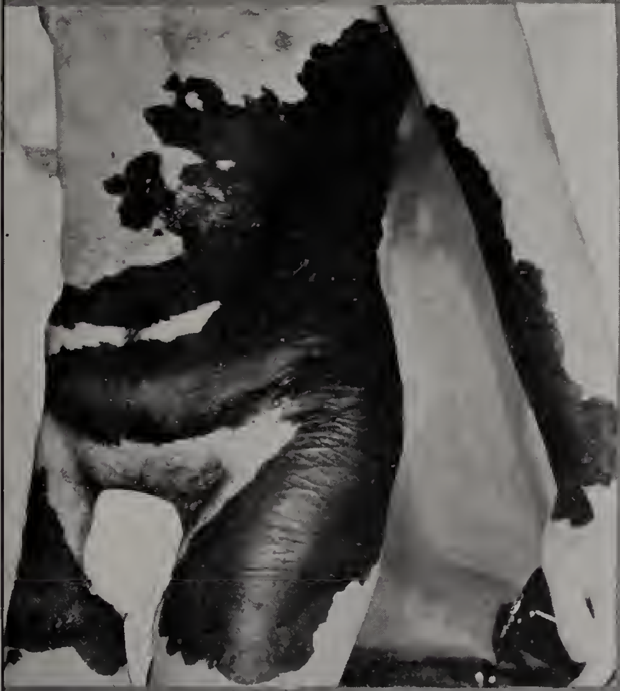

Fig 2

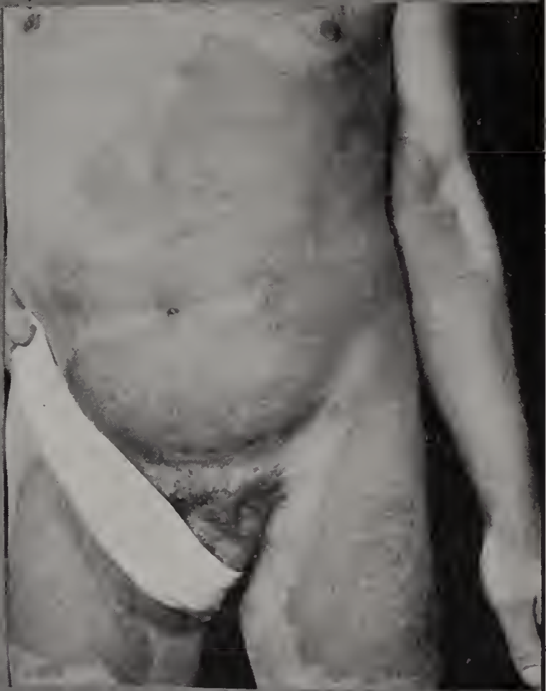

Fig 3

Fig. 1. This demonstrates the method of placing a burned patient in physical therapy tub of cold water.
Fig. 2. Appearance of patient after application of the Bettman tannic acid and silver nitrate treatment.
Fig. 3. Appearance of patient after leaving hospital.

For the next two hours this treatment is continued. During this time the water is gradually warmed, as rapidly as the pain sensations of the patient will permit. The temperature of the water has been checked with many cases and the optimal temperature is illustrated in chart 1. The temperature of the water at first is between 60° and 70° F. At the beginning of the third hour, it is about 98° F. At this time one-fourth grain of morphine is usually given, preparatory to the mild debridement to follow. About one-half hour later remaining pieces of clothing are removed, dead tissue and dirt are wiped away with gauze, and blebs are opened. When the tub has been grossly fouled, it is emptied and refilled. If much dirt and grease are present, the body is scrubbed from head to foot with sterile soap and water. After the burned areas and body are clean, the patient is rinsed with sterile water and dried with warm air from an ordinary hair drier as described by Wells.[3]

The patient is then ready for crusting. He is placed on a sterile sheet on the bed and is ready for Bettman's[4] tannic acid and silver nitrate treatment or the ferric chloride coagulation method described by Coan[5] (figs. 1, 2, 3). This next step and other subsequent procedures, such as the treatment of infected areas and later plastic repairs, are of at least equal importance to the treatment of the initial phase, but this paper is not concerned primarily with a discussion of these procedures.

Any attempts to remove adherent clothing and dirt, to do any other debridement, or to crust the patient before the initial phase of shock is over not only cause much agony to the patient but contribute directly to the severity of the shock.

It is not necessary to hospitalize patients with minor burns, as they can be treated at home. The secondary crusting may also be done in the home. Only in cases of severe shock or when a large area is involved, is it necessary to hospitalize a burned patient. This treatment may be started before the doctor arrives.

RESULTS

The evaluation of any new method of therapy for burns is very difficult because the condition is not in any sense a standardized disease which lends itself well to statistical analysis. Although we are concerned in this report with the treatment of the initial phase, the subsequent treatment of the burned patient is likewise of paramount importance and can easily affect the mortality rate. Nevertheless, when in a small series several patients with burns involving more than half the body surface have survived, at least one factual result is obtained that lifts these claimed results out of the class of "personal impressions." The tables here submitted are done in the spirit of a preliminary report (table 1).

	No. Patients	Deaths	Percentage
Nov. 1, 1931-Nov. 1, 1932	43	7	16.0
Nov. 1, 1932-Nov. 1, 1933	45	5	11.0
Nov. 1, 1933-Nov. 1, 1934	42	6	14.0
Cold Water Treatment—			
Nov. 1, 1934-Oct. 1, 1935	40	3*	7.5
Oct. 1, 1935-April 1, 1936	12	1	8.0

*One patient died before treatment was instituted.

Table 1. Cases of burns treated at King County Hospital. Note reduced mortality with cold water treatment.

Hydrotherapy for burns, including different forms of tub immersion, is not new, but in a rather diligent search of the literature no specific reference to cold water was found. Of crucial importance is the temperature of the water used during the first three hours. This treatment was suggested by Clyde Jensen, pathologist at King County Hospital.

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[3] Wells, D. B.: Aseptic Tannic Acid Treatment of Diffuse Superficial Burns. J. A. M. A., 101:1136-1138, Oct. 7, 1933.

[4] Bettman, A. G.: Tannic Acid Silver Nitrate Treatment of Burns. Northwest Med., 34:46-51, Feb., 1935.

[5] Coan, G. L.: Ferric Chloride Coagulation in Treatment of Burns. Surg., Gynec. & Obst., 61:687-692, Nov., 1935.

[6] Passavant, G.: Burns of the Human Body and their treatment with a continuous warm bath. Deutsche Klinik, 10:348, 1858.

[7] Rose, A.: Continuous Water Bath for Burns. J. A. M. A., 47:1042, Sept. 29, 1906.

[8] Rose, A.: Use of Hot Irrigations in Thermal Trauma. Medical Times, 40:4, 1912.

[9] Forster, D.: Bath for Burns. J. A. M. A., 73:1361, Nov. 1, 1919.

ARTIFICIAL FEVER TREATMENT OF CHOREA. Since February, 1935, Clarke H. Barnacle, Jack R. Ewalt and Franklin C. Ebaugh, Denver (*Journal A. M. A.*, June 13, 1936), have treated thirteen moderate or severe cases of Sydenham's chorea with artificial fever, using the Kettering hypertherm, an air conditioned cabinet. In the treatment of the first few cases, fever sessions of two and one-half hours were given at intervals of from three to six days and at temperatures ranging from 103 to 106 F. (rectal). Experience has shown that patients respond more rapidly if the two and one-half hour fever sessions are given daily at temperatures of from 105 to 106 F. (rectal). This procedure materially shortens the entire course of the chorea attack and quickly restores the patient to normal activity. Strict rest should be insisted on during the interval between treatments. The progress of the patient has been used as a guide to the amount of fever necessary. The average amount of fever administered was twenty-four hours at from 105 to 106 F. (rectal). There have been no recurrences to date. The amount of shock following the injection of triple typhoid vaccine, as shown by chills, vomiting, severe headache, extremely high fever and marked prostration, is a serious contraindication when there is already a badly damaged heart. With artificial fever such complications can be avoided. There is a distinct advantage of artificial fever produced by mechanical means over the foreign protein method. One advantage is the controllability of the temperature. Treatment may be terminated instantly should unforeseen complications arise. Furthermore, a specified dose of fever may be administered at will. None of the authors' patients showed loss of weight during the fever sessions. An adequate fluid intake by mouth can be maintained with maintenance of the fluid balance.

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JULY, 1936

EDITORIAL

HEALTH INSURANCE IN BRITISH COLUMBIA

During recent years there has been a wide spread clamor in certain of our states for the establishment of some form of state medicine. The advocates of such a procedure have loudly proclaimed that the United States is the only country in which some form of health insurance does not exist and that the needs of our people demand the inauguration of some such system. Nevertheless in no state, thus far, has such a plan materialized, although at succeeding sessions of our legislatures certain plans have been proposed for the purpose of inaugurating such measures.

Among our Canadian neighbors the same agitation has been in progress, but nowhere has it materialized except in British Columbia, where the Provincial legislature on March 31 passed an act to provide for the establishment of the Provincial System of Health Insurance. It will be of interest to note a few of the principles involved in this act, with a recital of the reaction on the medical profession of the Province. The act provides that every employee in the Province, with his dependents, shall become an insured person, whose income is not greater than $1,800 per annum. Those exempt from this provision are agricultural employees, members of the Christian Science Church holding certificates of exemption, and employee members of industrial medical-service plans operated primarily for the benefit of the employees of a single employer, where at least 75 per cent of the employees are embraced within its membership. Subject to the approval of Lieutenant-Governor in Council, exemptions may also be extended to domestic servants employed in private households, part time employees, and employees in establishments or industries whom, in the opinion of the Commission, it would be inexpedient to include within the scope of this act. Furthermore, at some future date a resident of the Province not an employee insured person, if he so desires, may with his dependents become insured under this act, even though his income may exceed the above mentioned limitation.

In order to create a fund to finance this health insurance, it is provided that the employer shall deduct from the employee's wages an amount calculated at the rate of 2 per cent of the amount of his remuneration, except that the amount deducted shall not be less that 35c per contribution week, nor shall it exceed 70c per week. On the part of the employer, his contribution shall be 1 per cent of the employee's wage, but not less than 20c per contribution week for each employee and shall not exceed 35c per contribution week. It is estimated the act will cover 110,000 employees and 165,000 dependents, or 275,000 individuals. It is also estimated that the proposed plan of collections will produce approximately $1.04 per month per insured person.

The benefits contributed to the employees shall consist of services of the physician when required for preventive, diagnostic and therapeutic treatment, including pernatal and maternity treatment for women, surgical and specialist services. Necessary hospital maintenance shall be provided. Also provision shall be made for drugs, medicines, and dressings, subject to the provisions, however, that require the insured person to pay not to exceed half of these costs. Necessary laboratory services, diagnostic aids with roentgen ray and other services shall be provided. No benefit shall be provided for an insured person who is entitled to receive such under some other act of parliament or through any public or governmental institution.

Payment for medical services includes a variety of plans. This may be by a salary system, by a per capita system whereunder the physician is paid a fixed amount per annum for every insured person eligible to receive benefits, or by a fee system under which payment is based upon the extent and character of the services rendered. Provision is made that compensation shall be revised at the end of six months and thereafter annually for the next succeeding year. Thus far no system of payment for medical services has been adopted.

A careful study of this bill has been made by the British Columbia physicians, and in their official publication are presented their observations concerning its enforcement. It is stated that the original draft of the bill made provision for all members of the community whose yearly income fell below a certain level and that the government should contribute at least half of the cost. It is claimed that the humanitarian features are destroyed by the elimination of the indigent, the domestic servant, the casual laborer, the part time worker, those in receipt of mothers' and old age pensions, people who really need medical attention the most. It is stated that it will be impossible to provide a complete and adequate medical service as has been promised. The experience of England and Germany with their health insurance is an outstanding example of such failure. This bill promises the services of specialists, but does not provide funds to pay for it. It does provide, however, that if sufficient money is not obtainable, medical benefits will be reduced and if there is not enough money to pay for all medical services given, a reduced rate of pay must be expected by physicians. It is almost certain that payments will not be enough to meet expenditures and that they will soon need to be raised as has been the case with all workmen's compensation acts, old age pensions, mothers' pensions, social service and the like. The danger of inadequate medical services or lowering of standards of medical practice is inevitable as has been proven in the experiences of European countries.

For the purpose of administering this act a Health Insurance Commission has been appointed by the Lieutenant-Governor in Council, composed of a chairman, and not more than four other members. Their compensation and periods of service are duly enumerated. The Lieutenant-Governor may appoint a Technical Advisory Council of no more than six persons, including the Provincial Health Officer and a physician with experience in practice. The members of this council shall receive no remuneration for their services except the payment of traveling and other personal expenditures incurred in discharge of their official duties. The commission shall employ a physician as director of medical services and such other physicians and employees as will be required for administration of this act. This health insurance bill has not yet become a law, awaiting a proclamation when the Cabinet so decides.

Comparisons have been made between this health insurance act and the medical service bureaus of Washington which have been in existence from three to five years in different counties. Both extend medical care to the same groups of employees, whose maximum income is $1800. In British Columbia the beneficiary includes the dependents of the employee which it is estimated will average three and a half persons. This service is compulsory among those employees to whom it is extended with exceptions already noted. Provision is made for voluntary beneficiaries who may be higher wage earners. Two-thirds of the cost is paid by employees and one-third by employers. The employee has a free choice of physician, but he may not be available if he has not accepted this form of practice. In Washington the employee alone is the beneficiary of the service. There is no extension to those of higher bracket incomes. The service is voluntary and is offered to groups of employees, 75 per cent of whom accept the service which is established by contract with the employer, who collects a monthly sum from each employee, averaging $1.40 per month. At the present time 60,000 individuals are covered in the state. The employee has free choice of physicians from those who are members of the bureau, these being a majority of the respective county society membership.

If in due time this act is officially proclaimed, we will behold state medicine in action in close proximity to us. What effect this will have upon those health insurance-minded among our citizens is problematical. Undoubtedly this will be cited by the advocates of such methods and the state medicine enthusiasts will undoubtedly use this as an argument for the promotion of their views.

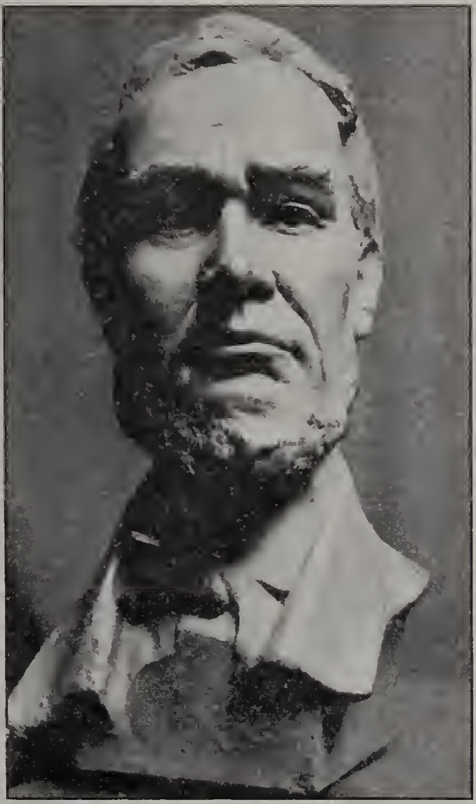
DEATH OF PRESIDENT MASON

Following the tragic illness of James Tate Mason and his subsequent impressive inauguration in absentia as president of American Medical Association, the inevitable termination followed with his death June 20. The conspicuous position which he occupied before the medical profession of this country produced universal interest among physicians and laymen in his unusual form of illness and its subsequent developments. This quite uncommon arterial disease, producing multiple thrombi involving both lower extremities and the brain, produced a series of startling clinical incidents. Fortunately such a striking course of developments is very unusual and its duplication can scarcely be anticipated. It was an unhappy fate that terminated Dr. Mason's career at the height of his useful period of life. He was the chief factor in developing an institution which became one of the outstanding hospitals of the Northwest. Virginia Mason Hospital will continue as a memorial to his energy and persistent application in the most modern lines of scientific medical development. His untimely passing is a source of universal regret.

SEATTLE'S FIRST PHYSICIAN

The accompanying photograph represents the bronze bust of Dr. David Swinson Maynard which was made by sculptor James A. Wehn under the supervision of Public Works of Art. It is an idealized likeness made from the photograph which appears in all biographic sketches of Dr. Maynard. The pedestal was provided by Puget Sound Surgical Society. This memorial of Dr. Maynard will be permanently located in the library of King County Hospital.

Dr. David S. Maynard was born near Castleton, Vermont, in 1808. As was the custom of medical students of those days, he studied medicine in the office of Dr. Theodore Woodward, who was a professor in Vermont Academy of Medicine. At the age of twenty years he was given a diploma by this academy, whose name was later changed to Castleton Medical College and became extinct in 1861. After practicing for a time in Vermont, Dr. Maynard located near Cleveland, Ohio, where he practiced for twenty years. Owing to financial and marital difficulties he decided to seek his fortune in the far west. Accordingly, in April, 1850, he joined an emigrant train which crossed the plains, reaching Portland, Ore., in October. During the following two years he had varied experiences in Oregon, in Olympia and Nisqually in Washington and California. Finally he went to Puget Sound, arriving at Alki Point in March, 1852, where the original settlers had located. He joined them in making a permanent settlement a few days later on the site named Seattle in honor of Chief Sealth, with whom Maynard developed a lasting friendship. During the following twenty-four years he took an active and leading part in the development of the young city, participating in civic, social and medical affairs. His death occurred in 1876. Several biographies of Dr. Maynard are available, giving details of his life in Seattle and the Puget Sound area. This bronze likeness will be a permanent reminder of Seattle's first physician.



DR. DAVID SWINSON MAYNARD
1808-1876

SUPPORT ANTISYPHILITIC CAMPAIGN

Every physician should extend his approval and cooperation in support of the campaign for suppression of syphilis which is being conducted by Surgeon General Thomas Parran. In this month's issues of *Survey Graphic* magazine and *Readers' Digest* are published articles by him showing his determination to educate the public concerning the terrible menace of syphilis and the possibility of its suppression, if the work is carried on intelligently and with general popular support. He declares that, if all conditions due to syphilis were reported, it would be found to be the leading cause of death in the United States. One adult in ten is infected by this disease at some period during his lifetime, making this a condition that may well be termed the "Great American Disease." The widespread prevalence of this disease is due largely to the tabu entertained by most people against the mere mention of the word syphilis, while its discussion has been looked upon as sinful. The public is not aware that half of the infections have been obtained innocently. The prevailing belief is that it is acquired only from prostitutes, while in reality no more than 25 per cent of cases can be attributed to commercial prostitution.

It is a sad commentary on the situation in the United States when one considers that in Scandinavian countries syphilis has become a rather rare disease and in Great Britain and Wales it has been cut in half during the last fifteen years. These results have been due to publicity and education of the people concerning the facts of this disease. It should be generally known that more taxes are being paid by our people for the care of neglected syphilis than it would cost to make it as rare a disease as in Sweden. Five cases of syphilis could be treated for what its costs to treat one case of tuberculosis. Information of this character should be widely disseminated so that early symptoms could be recognized and adequate treatment instituted when cure is easily obtainable. It is asserted that this scourge of syphilis could be terminated within our generation, if properly attacked and efforts for its suppression were universally supported. Physicians can become the chief agency in securing this result.

COMING STATE MEETINGS

It is to be noted that the annual meetings of Washington and Idaho State Associations are scheduled for the first week in September. Both are preparing interesting programs which it is believed will be attractions for large attendance among their respective memberships.

In last month's issue were listed the speakers for the Idaho meeting, all six of whom are from the faculty of the Medical Department of University of California. Specific information regarding the program will be published in next month's journal. It is announced that the speaker for the banquet will be Professor Ralph H. Lutz, Director of Hoover War Library and Chairman of Graduate Study Committee at Stanford University. He is also professor of history at that institution, being an expert in the field of modern European diplomatic history. The Woman's Auxiliary of Southwest District Society will feature daily luncheons, to which the general public is invited. The programs will include addresses by Chauncey D. Leake on "Patent Medicines and Cosmetics"; Langley Porter, "The Good Child and the Bad," both of these speakers being from the faculty of University of California Medical School. Edith P. Sappington of the Children's Bureau of Washington, D. C., will also deliver an address. Additional speakers are also expected.

The annual Washington meeting at Yakima will offer attractive features that should interest all members. Under "State Departments," page 278, will be found a preliminary announcement by President Bice, indicating some items of the program. All should read this. In next month's issue will appear complete programs of both Washington and Idaho annual meetings.

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WASHINGTON GRADUATE LECTURES

Attention is again directed to the annual course of lectures and clinics presented by University of Washington at Guggenheim Building, July 20-24. As the faculty consists of only four men, each will follow out a connected series of lectures with abundant time for their presentation. This course of lectures has become recognized as an established educational institution that is well worthwhile the patronage of all who can plan to attend. Details of the lecture course will be found on page 283, to which the reader is referred for additional information.

MEDICAL NOTES

OREGON

Value of Free Medical Service. Various estimates have been made from time to time of the monetary value of services which physicians of the community offer gratuitously during a given year. Since no records are kept of such services, published figures are necessarily estimates to a large extent. It has recently been stated that the secretary of University of Oregon Medical School compiled statistics for the Portland Community Fund, showing that an estimated value of free services by physicians and surgeons in Multnomah County for the year 1932, contributed in hospitals and free clinics, amounted to $458,727, based on fee schedules of the State Industrial Accident Commission. In addition to this it was estimated that the value of free services to private patients amounted to an additional $710,220, making a total of more than one million dollars free medical service in this community for one year. It is estimated that in subsequent years this amount was probably substantially increased. This situation is typical of what is found in all parts of the United States. It might be well to have such figures for future reference, since lay investigators of medical affairs often overlook this feature of medical practice.

New County Health Officer. Neil Black has been elected Klamath County health officer by the newly organized health board, with headquarters at Klamath Falls. At present he is connected with the Federal Public Health Service at San Francisco. After graduating from University of Oregon Medical School and taking special work in chemistry, he served two and a half years as city bacteriologist for the city of Portland.

Hospital Homecoming. All ex-patients of Oregon Tuberculosis hospital at Salem were invited to a homecoming at the institution, June 25-27. It was devoted mainly to examinations of the former patients. Also there was an opportunity of discussing experiences and problems and renewing acquaintances.

Fire in Hospital. A fire occurred last month in the kitchen in Eastern Oregon Hospital at Pendleton which was controlled after damage of about $1000. Fortunately it was suppressed before there occurred serious damage to the building or undue excitement among patients.

Jackson County Medical Society held a meeting at Medford June 5, W. F. Roney and F. J. Moffatt being hosts at the dinner meeting. After the presentation of clinical cases, Richard Dillehunt, Dean of University of Oregon Medical School, gave an address illustrated with roentgen slides on certain types of conditions found in children's feet. H. H. Dixon of University of Oregon Medical School gave an address on psychiatry.

Rachel C. Sparks has moved to Portland, where she will engage in private practice. For the past six years she has resided at Corvallis where she has been engaged in health service at Oregon State College. After graduating from University of Minnesota Medical School she was connected with University of Kansas health service at Kansas City.

Robert M. Coffey of Portland, where he has practiced for a lengthy period, has removed to Juneau, Alaska, where he will engage in future practice. He has taken the offices in that city of W. M. Whitehead, who has moved elsewhere.

Wedding. Hubert Bonebrake of Portland was married to Miss Mildred Reinhart of that city, June 3. He is a graduate of University of Oregon Medical School and will practice in Portland.

WASHINGTON

Whitman Centennial Celebration. The Whitman Centennial will be held in Walla Walla, August 13-16. The first day of the program will be devoted to honoring Dr. Marcus Whitman, the first American physician to practice west of the Rocky Mountains. The program will include a paper by Olaf Larsell of University of Oregon Medical School on "Medical Practice 100 Years Ago." Frank C. Waite of Western Reserve Medical School will present a paper, "Medical Education of Marcus Whitman." A paper will also be read, entitled "The Progress of Medicine During the Last 100 Years." Presidents of Washington, Oregon and Idaho State Medical Associations will appear on the program. A portrait of Dr. Whitman will be unveiled as a gift from doctors of the Pacific Northwest to the American Medical Association for presentation to Whitman College. Park W. Willis of Seattle has been appointed by the A. M. A. to preside at this meeting.

Washington State Tuberculosis Association held its annual meeting at Longview, June 18-20. There was a good attendance from all parts of the state. Papers were presented by W. F. Shepard, secretary of Western Branch, American Public Health Association, W. C. Voorsanger, Ruby L. Cunningham, University of California, L. G. Woodford of Everett, John E. Nelsen of Seattle, P. V. Covington of Salt Lake City, and Miss Fannie B. Shaw of New York City. Various phases of the tuberculosis problem seen in various parts of the country were discussed. Officers elected for the ensuing year include W. B. Penny of Tacoma, president; Carl Smith of Seattle, vice-president; Mrs. Elizabeth Soule of University of Washington, secretary. The meeting for 1937 will be held at Ellensburg.

Washington State Society for Mental Hygiene held its annual meeting at Winthrop Hotel, Tacoma, June 4. More than three hundred were in attendance. Olaf Olson, state director of Finance, Budget and Business, discussed "The Present and Future Program for Our State Institutions." Miss Lillian Anderson of Seattle discussed "Children that Don't Fit." W. N. Keller, superintendent of Western State Hospital, presented motion pictures on "Modern Hospital Care for the Mentally Ill." A. C. Stewart of Tacoma was elected president for the ensuing year. R. H. Somers of Seattle, first vice-president, A. J. O'Leary of Spokane, second vice-president and Mrs. O. S. Proctor of Seattle, secretary.

Washington Public Health Association held a meeting at Bellingham, June 23. Among the speakers were R. M. Atwater, executive secretary of American Public Health Association; John Collison, assistant chief statistician in the United States Bureau of Census; Walter H. Brown of Stanford University, president of the national association; W. A. Buice, president of the state association. Various phases were considered of public health and social work, including community health programs, milk inspection, maternal and child health services and other health topics.

Yakima County Medical Society held its regular monthly meeting at Commercial Hotel, Yakima, June 8. The usual dinner preceded the meeting. Twenty-seven members and one visiting physician were present.

Kay England and William L. Ross, Jr. were elected delegates to the state convention; H. S. Atwood and A. J. Helton were elected alternates.

The scientific program was as follows:

Louis P. Gambee of Portland presented a paper on "Some Phases of the Intestinal Obstruction Problem." This was illustrated by stereopticon slides.

John R. Montague of Portland read a paper on "Non-myxedematous Hypothyroidism."

W. Ray Jones of Seattle read a paper entitled, "Venereal Disease Patients' Assets."

Snohomish County Medical Society held a monthly meeting at Medical Dental Building, Everett, June 4, President O. R. Allen presiding. Papers were read by B. Berensom. Motion pictures pertaining to medical matters were also displayed.

Clinic Declared Illegal. During several months court action has been in progress in the Thurston County Court against Lumberman's Clinic of Olympia, charging that it illegally entered into contracts with employers to give medical attention to their employees on the ground that it was not a hospital association under the law and that it was illegally engaged in practicing medicine. An appeal was taken from the court action affirming these claims. Both Thurston County as plaintiff and the Clinic as defendant appealed to the Supreme Court which has ruled that the trial court was correct in holding that the clinic is not such a hospital association as meets requirements of the law. It was held that the judgment should include a provision that, if reorganization has not been effected within ninety days, the court will enter a judgment of ouster. The ultimate action following this decision will be awaited with interest.

Medical Bureau Purchases Hospital. Cowlitz County Medical Service Bureau at Longview has ventured into a new enterprise by purchasing the Cowlitz General Hospital with its equipment. J. W. Henderson, who has practiced for many years in that city, has been appointed to take charge of the institution. He will devote his full time to its management. The haspital has been remodeled by the addition of several rooms and its promoters are anticipating its recognition as a standardized hospital. This move suggests a new possible future development for the county medical service bureau.

MEETING OF HEALTH OFFICERS. Thirty-five county health officers and public health nurses from counties in eastern Washington held a conference in Spokane, May 29. A. E. Lien, health officer of Spokane County, called the meeting to order and handed it over to Donald G. Evans, assistant state health officer, who presided. John Fuller, assistant state health officer, and Miss Amma R. Moore, state director of public health nurses, were the chief speakers. There was general discussion by health officers from a number of counties.

NEW COUNTY HEALTH OFFICER. John A. Kahl of Portland has been appointed health officer in charge of the county-city health department for Clark County, being located at Vancouver. He will take the position rendered vacant by resignation of Clyde B. Hutt. After graduating from University of Nebraska Medical School, Dr. Kahl became interne at Good Samaritan Hospital where he is serving at the present time.

HONOR CONFERRED ON DR. MASON. After the termination of one's service as president of the American Medical Association, it is customary to bestow upon the retiring official a plaque commemorative of his term of service. On June 1, Ralph Fenton of Portland, trustee of the American Medical Association, presented to J. Tate Mason, a patient at Virginia Mason Hospital, Seattle, a formal certificate of election which is ordinarily presented to the president at the beginning of his term of office. Owing to the inability of Dr. Mason to function in this capacity, Dr. Fenton also presented to him the official plaque which would have been received at the termination of his period of service.

HONORED BY SURGICAL SOCIETY. Seattle Surgical Society held a special meeting June 6 to honor A. I. Bouffleur, chief surgeon of Milwaukee Railroad. The program consisted of a clinic on traumatic surgery held at King County Hospital, with a dinner in the evening at Rainier Club, at which time he was elected an honorary member of the society. Dr. Bouffleur graduated from Rush Medical College in 1877. He served as associate professor of surgery at this institution and also engaged in private practice in Chicago. For many years he has been chief surgeon for Milwaukee Railroad and has resided in Seattle since 1911.

APPOINTED TO RESEARCH WORK. Frank L. Horsfall, Jr. of Seattle has been appointed resident physician to Rockefeller Research Hospital, New York City, where he will carry on work for the coming two years. After graduating from University of Washington, he took his medical degree at McGill University. For two years he has been a research fellow at Rockefeller Hospital.

MUSICAL PRIZE WINNER. Louis H. Maxson of Seattle, well known for his unusual musical attainments in addition to medical acquirements, recently won $100 prize competition for a musical composition. There was a large number of contestants for the musical score of the song "Just You." It is stated the music will be entered for a national contest of $100 prize offered by the Hearst newspapers.

THOMAS MORCOM has located for practice at Nome, Alaska. For the past thirteen years he has practiced in Seattle, where he has been one of the prominent physicians. He has been especially active in the affairs of King County Medical Society, in which he has been an officer for many years. At Nome he will engage in general practice and expects to remain there for a number of years.

H. W. FLEISCHHAUER, who has practiced in Seattle for thirteen years, has located at Port Angeles where he will continue as an eye, ear, nose and throat specialist. He will take the practice of Frederick T. Hyde who has been located at Port Angeles for the past twenty-five years and has retired from practice.

ARTHUR M. DOUGHERTY has located for practice at Olympia. After obtaining his medical degree from Georgetown University, Washington, D. C., he practiced for twelve years in New York City, later locating for five years at Topeka, Kansas.

JOHN W. SCHORI has located for practice at Bellevue. After graduating from the University of Illinois Medical School, he served as interne at King County Hospital, later locating for practice at Spirit Lake, Ida., where he resided for several years.

DELEGATE TO DEMOCRATIC CONVENTION. N. R. Gregg of Coulee City has been elected alternate delegate to the meeting of the Democratic National Convention to be held at Philadelphia.

WEDDINGS. William M. Davidson of Seattle was married to Miss Harriet Shipman of Montclair, N. J., June 17. They will reach Seattle later in the summer, where Dr. Davidson will continue practice. C. Louis Hoeffler, Jr. of Everett and Miss Lillian Schreiber of Twin Falls, Ida., were married May 30. Michael J. O'Connor of Spokane and Miss Chonita Bovet of San Mateo, Calif., were married in the latter city, June 6. After a month's visit to Honolulu, Dr. O'Connor will continue practice in Spokane.

IDAHO

NEW HEALTH OFFICER APPOINTED. M. W. Caskey of Taylorsville, Ky., has been appointed by J. D. Dunshee, state health adviser, to manage the Lewiston Public Health unit. Similar health units are being established at Twin Falls and Pocatello.

L. O. KROTCHER, who has practiced during the past year at Coeur d'Alene, has accepted the position of supervisor of the Public Health Unit at Twin Falls. This is one of ten health units which are being formed in Idaho.

W. F. TYLER, who has practiced medicine at Sandpoint for the last seven years, has left and gone to Shelby, Mont., where he will practice in the future.

VIABILITY OF BACTERIUM TULARENSE IN HUMAN TISSUES. Lee Foshay, Cincinnati, and O. B. Mayer, Columbia, S. C. (*Journal A. M. A.*, June 20, 1936), report the case of a patient with the ulceroglandular form of tularemia, treated by antiserum, who developed tularemic infection of the olecranon bursa three months after onset of the disease and one month after cessation of disability. No constitutional symptoms accompanied the bursitis. Regional symptoms and signs, and the cellular reaction within the bursal fluid, indicated a mild subacute or chronic infectious process. Viable virulent Bacterium tularense was obtained from the fluid by direct cultures and by animal inoculations four months and five months after the onset of illness, corresponding to the second and third months after cessation of all disability. Bacterium tularense was seen in stained smears of one specimen of the fluid. Bacterium tularense can survive in certain tissues of recovered patients for long periods. The ultimate outcome of these bacterial seclusions seems to depend on the solidity of the established bacteriostatic equilibrium.

OBITUARIES

Dr. James Tate Mason of Seattle, Washington, died June 20, as a result of arterial thrombosis, aged 54 years. He was born in Orange County, Va., in 1882. After college preparation at Locustdale Military Academy at Culpepper, he obtained his medical degree from University of Virginia Department of Medicine, Charlottesville, in 1905. After serving as resident physician at Philadelphia Polyclinic hospital, he came to the Pacific Coast in 1907. During the next two years he was surgeon for Pacific Coast Coal Company's mines at Franklin, Wash. In 1909 he settled in Seattle for practice. In 1913 he was elected coroner for King County, serving in that capacity until 1917 when he was appointed head of the staff of King County Hospital, serving in that capacity until 1923. During this period he was also engaged in private practice. In 1919 he and a group of physicians established Virginia Mason Hospital, which subsequently was enlarged and developed into one of the best known hospitals of the state. In 1931 he served as president of Pacific Coast Surgical Association. At the 1935 meeting of American Medical Association he was chosen for president-elect and at the last annual meeting in Kansas City he was elected and inaugurated in absentia as president of American Medical Association, the highest honor conferrable upon a physician in this country. During the first six months of his service as president-elect he traveled extensively in different states, meeting and addressing members of the profession. For several months during the winter sickness prevented his usual professional activities. In April he was afflicted with an unusual arterial affection resulting in thromboses of both legs and one in the brain. This necessitated the amputation of a leg in May. Dr. Mason possessed marked ability as a surgeon which was recognized by his fellow practitioners and resulted in a successful professional career. He possessed an unusually happy, genial disposition which produced many friends both within and without the medical profession. Consequently his death will be lamented by a large circle of friends and admirers.

Dr. William L. Hall of Seattle, Wash., died May 29, following a prolonged illness of chronic arthritis, aged 68 years. He was born at Hopewell Springs, Tenn., in 1868. He was educated at Maryville College, Maryville, Tenn., and obtained his medical degree from Vanderbilt University School of Medicine in 1890. He practiced at Morganton, Tenn., until 1892 when he moved to Oaksdale, Wash., remaining there until 1894. During the following five years he practiced at Shansi, China, under the American Board of Commissioners for Foreign Missions. In 1890 he located at Spokane, practicing there until 1914 when he moved to Seattle. In 1916 he engaged in missionary work once more in Suining Sze, China, under Friends Mission Board of London. In 1919 he returned and located at Seattle where he practiced until disabled by illness.

Dr. Clarence E. Munn of Marysville, Wash., died May 28 after a long illness, aged 73 years. He was born at Shawano, Wis., in 1863. He obtained his medical degree from Hahnemann Medical College and Hospital, Chicago, in 1884. He came west in 1889 in the service of the U. S. Treasury Department as special agent for the examination of Chinese entering this country. He was located for four years at Port Townsend, serving in this capacity. He located in Marysville for general practice in 1893. He served as county coroner and for two terms was mayor of Marysville. He also served on the city school board. He was connected with various civic and business organizations and was known as one of the leading citizens.

Dr. W. Gardner Gabie of Seattle, Wash., died June 25 of coronary thrombosis following an illness of a year and a half, aged 57 years. He was born in Quebec in 1879. He obtained his medical degree from McGill University in 1907. He then went to Skagway, Alaska, where he practiced for eleven years. He was also surgeon for the White Pass and Yukon Railroad. In 1919 he went to Europe and for two years studied dermatology in London and Paris. He located for practice in Seattle in 1921 specializing in dermatology. He was continuously in practice until disabled by recent illness.

Dr. Othello C. Bishop of Port Townsend, Wash., died at Marine Hospital, Seattle, June 8, from cardiac disease, aged 49 years. He was born in Lexington, Neb., in 1886. He received his medical degree from University Medical College of Kansas City, Mo., in 1912. He practiced in St. Paul, Minn. and Omaha, Neb., for several years. He served with the army in France during the World War. In 1922 he entered United States Public Health Service. For a number of years he had been physician at the Marine Hospital, Port Townsend, until his retirement in 1933.

Dr. Morton M. Myers of Akiak, Alaska, died at Anchorage, May 26, aged 65 years. He was born in Indiana in 1872 and obtained his medical degree from State College of Physicians and Surgeons, Indianapolis, in 1907. Previous to eight years ago he practiced for fifteen years in Seattle. He then moved to Akiak where he was superintendent of government hospitals. During the past three years he has been traveling physician in Alaska for the United States government.

Dr. Thomas R. Steagall of Tacoma, Wash., died suddenly June 3, aged 74 years. He was born in 1862 and obtained his medical degree from Kentucky School of Medicine, Louisville, in 1897. He practiced for a long period of years in Tacoma and was widely known as a successful physician.

Dr. Eugene L. Ketcham of Independence, Ore., died June 22, aged 80 years. He obtained his medical degree from University of Michigan Medical School in 1883. He located in Independence for medical practice in 1884, continuing there until 1918. He has not practiced for a number of years.

Dr. Louis G. Altman of Salem, Ore., died May 18, aged 83 years. He was born in 1852 and obtained his medical degree from Hahnemann Medical College and Hospital, Chicago, 1882. For the past thirty years he has practiced at Salem.

Dr. Horace P. Belknap of Prineville, Ore., died May 18, aged 80 years. He was born in 1856 and obtained his medical degree at Bellevue Hospital Medical College, New York, in 1886. He had practiced in Prineville and neighborhood for the past fifty years.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

Portland, Ore., June 2, 1936.

The June meeting of the Council of Oregon State Medical Society was held at a luncheon at the Sacajawea Hotel in La Grande on June 27, in conjunction with the annual meeting of the Eastern Oregon District Medical Society. About sixty members were present while the Council transacted its business. William J. Weese, vice-president, of Ontario, presided in the absence of President George A. Massey of Klamath Falls.

The meeting was very successful in that a large attendance was present, and the program was excellent. The meeting of the doctors away from Portland with the Council has a good effect upon medical organization.

A communication was read from Benton County Medical Society to the effect that they had decided to cancel all contracts and to care for industrial work by free choice of physician, effective June 15. The resolution also provided that only those physicians who are in agreement with this plan are eligible to bring patients to the hospital which they operate.

A vote of thanks was extended to radio station KOAC for the medical broadcasts and the fine cooperation which they have given. A letter was read from a component society asking the Industrial Affairs Committee to use their efforts to abolish the cut of twenty-five per cent in fees which is now in effect for industrial work.

Upon recommendation of the committee appointed to investigate, it was voted not to cooperate with the life insurance company which wishes to sponsor a medical program.

A report from the Woman's Auxiliary was to the effect that they are making special efforts to increase the subscription list of Hygeia, and the members were asked to cooperate with the woman's organization in this matter.

A. G. Bettman, *Editor..*

WASHINGTON

PROGRAM OF THE ANNUAL MEETING

Yakima, Wash., June 29, 1936.

I wish this month to call attention to the program that has been arranged by your committee, J. F. Scott, Paul J. Lewis, and Wm. L. Ross, Jr., for the annual meeting.

Our guest speakers will be the following: F. H. Falls of University of Illinois; Wm. S. Middleton of University of Wisconsin; Louis Clerf of Philadelphia, Pa.; Judge Charles P. Moriarity of Seattle, and our old friend and co-worker, Frank J. Clancy, now of the American Medical Association staff of Chicago. The foregoing speakers will present eight subjects which we feel will appeal to all. There will be prepared discussions on each of the scientific papers by members of our Association.

Besides the guest speakers, you will hear committee reports from John E. Nelson of the Tuberculous Committee, Donald V. Trueblood on the five year study by the Neoplastic Committee, and W. Ray Jones on the Social Hygiene Committee. We are also to have papers presented by George Miller of Seattle, T. H. Duerfeldt of Tacoma, James W. Manncy of Spokane, Alfred O. Adams of Spokane, Wm. L. Ross, Jr., of Yakima, H. D. Fritz of Cathlamet, and D. H. Nickson of Seattle. There will also be a paper by Walter Kelton of Seattle, on the all-important question of "Racketeering via the Malpractice Game." This paper will be discussed by Hon. Judge Charles P. Morarity of King County. We feel that the foregoing speakers will bring something well worthwhile. We are trying to crowd into the two days of scientific program a great amount of material, and we hope each of you will come with the intention of staying for the last number which will be by Wm. S. Middleton, and promises to be a paper of great merit.

And, of course, we expect all of you golf enthusiasts to come early to get yourselves in good form for the golf tournament, all day (and night) August 31. In fact, we have made arrangements whereby you may have access to the golf course on Saturday and Sunday preceding the tournament. So come early and practice up a bit on your putting, etc. We understand that some of our societies have some young phenoms who are very apt to make some of you old war horses look to their laurels. Keep the dates in mind: Yakima, August 31, Sept. 1 and 2.

D. F. Bice, *President,*

Life Expectancy In Coronary Thrombosis. Fredrick A. Willius, Rochester, Minn. (*Journal A. M. A.*, May 30, 1936), obtained information regarding 370 patients who had coronary thrombosis and who lived from a few minutes to seventeen years. In 71.9 per cent the thrombosis occurred when the patients were between the ages of 50 and 70 years. No patients were less than 30 years of age, the incidence in the fourth decade of life was 1.6 per cent, while 17 per cent of the patients were in the fifth decade. There was a great predominance of males over females; the ratio was 7:1. Solitary coronary occlusion occurred in 80.3 per cent of the cases; two episodes occurred in 17 per cent, three attacks in 2.2 per cent, and four episodes in 0.5 per cent of the cases. Death directly attributable to the heart occurred in 51.6 per cent of the cases, while other diseases such as pneumonia, cancer and nephritis accounted for the death of 2.7 per cent of patients. The patients surviving at the conclusion of the study comprised 45.7 per cent of the group. Of the cardiac deaths 36.6 per cent were ascribable to coronary thrombosis; gradual cardiac failure accounted for 51.9 per cent, and sudden death of uncertain mechanism for 11.5 per cent. While the incidence of females was relatively small (12.4 per cent), their cardiac death rate was considerably greater than among males: females 63 per cent and males 50 per cent. There was no correlation between the duration of pain in coronary thrombosis and death or survival. The cardiac death rate increased progressively with recurrent coronary thrombosis. Among cases of solitary coronary occlusion the cardiac mortality was 47.5 per cent, among cases in which there were two attacks 69.8 per cent, and among those in which three attacks occurred 75 per cent. The patients living at the conclusion of the study comprised 45.7 per cent of the group. Of these, 42.6 per cent reported themselves to be in good health, 23.1 per cent were well while living a restricted life, 28.9 per cent had recurrent anginal attacks, 3.6 per cent had congestive heart failure, and 1.8 per cent had had cerebral vascular accidents.

BOOK REVIEWS

Neurological Surgery. By Loyd Davis, M.S., M.D., F.A.C.S., Ph.D., D.Sc. (Hon.). Professor of Surgery and Chairman of Division of Surgery, Northwestern University Medical School, Chicago. Illustrated with 172 engravings and 2 plates. 429 pp. $6.00. Lea & Febiger, Philadelphia, 1936.

The author states this book makes no pretense at including an exhaustive treatise on each subject considered. The purpose has been to give to the practitioner of medicine easily assimilable facts which will aid him in giving his patient accurate and sound advice. The first chapter is devoted to neurologic diagnosis. No effort is made to go into detail and yet a very good working outline for diagnostic purposes is found in this chapter. The second chapter has to do with craniocerebral injuries, including general considerations, nonsurgical therapy, surgical treatment for hemorrhages and depressed fractures and the treatment of complications such as meningitis, brain abscess and post-traumatic symptoms. It is not very well illustrated and is perhaps the poorest section in the book. This is unfortunate since the greatest part of neurosurgery from the standpoint of the general practitioner has to deal with traumatic cases.

The third chapter on brain tumors is well illustrated, well written and easily understood. The fourth chapter on brain abscesses covers the field admirably. Chapter five on cysts and tumors of the skull is well illustrated and most interestingly presented.

Injuries to the cranial nerves and spinal cord and their treatment are presented in an excellent manner in chapters six and seven. Vertigo or Meniere's disease is included in this section. The chapter on spinal cord tumors is well done, but is not at all complete. Injuries to the peripheral nerves are beautifully presented.

The last six chapters have to do with pain and surgery of the sympathetic nervous system. The author has given accurate illustrations of each type of surgical procedure for the different diseases of this system. He discusses in detail the pathways of pain and substantiates his statements by work done by himself, coworkers and others in the field of experimental studies. In hypertension, for instance, he questions the value of surgery of the sympathetic trunks and the ultimate good that might result. On the other hand, in Buerger's disease and Raynaud's disease he questions whether the effect obtained by surgical intervention is due to increased circulation or increase of heat due to lack of surface evaporation. His conclusions are most interesting insofar as they are based on a great deal of actual personal experimental work.

Epilepsy is considered in one of the final chapters. The author has joined those who believe that convulsive seizures, coming on after the second decade in life, should be considered in the possible light of brain tumors or demonstrable organic lesions and advocates complete encephalographies in these cases. He is inclined to believe that surgery offers a field for further development. In summarizing, this book is a valuable addition to the library, not only of the general practitioner, but of the geneneral surgeon and neurosurgeon. It is well written, well illustrated and should meet with general approval.

Swift.

Clinical Heart Disease. By Samuel A. Levine, M.D., F. A. C. P., Assistant Professor of Medicine, Harvard Medical School, etc. 445 pages with 97 illustrations. Cloth, $5.50 net. Philadelphia and London: W. B. Saunders Company, 1936.

As the preface states, "the purpose of this book is to present in a simple form the important aspects of the diagnosis, prognosis and treatment of heart disease." Each chapter may be regarded as distinct in itself and as a brief treatise on that subject, reflecting the personal intensive study of the problems involved.

The twenty-two chapters represent the author's views of cardiac diseases. All the facts are presented, but theoretical discussions and bibliography are omitted. No one, reading this book, can fail to be impressed by its simple clarity, and also by the fact that the latest available information regarding the subjects treated is being imparted. It is as though a lecture was being delivered by this eminent authority.

In the chapter on coronary thrombosis the observation is made that rectal temperatures alone are of value. The author has often found a rectal temperature of 101° F. when the mouth temperature was only 98°. The truth of this has been confirmed by the reviewer on many occasions, but not previously seen by him in any book. Every internist and certainly every cardiologist will appreciate the value of this book.

von Phul.

Emergency Surgery. By Hamilton Bailey, F.R.C.S. (Eng.), Surgeon, Royal Northern Hospital, London; Surgeon and Urologist, Essex County Council, etc. Second Edition with 812 illustrations, of which a large number are in color. 842 pp. $14.00. William Wood and Company, Baltimore, 1936.

Drawing from a large and long surgical experience, the author deals with the problems and treatment of common acute surgical conditions in a concise and artful manner. Commencing with the abdomen he covers emergency surgical conditions in every part of the body and the treatment he has found most appropriate. Drawing from his own records and those of other English surgeons he presents frequent case histories beautifully illustrating the points in hand. They are not too frequent nor too long. It is a pleasure to read such a volume on this subject written by a master surgeon, presenting as it does from personal experience the methods which have best stood the test of time. It should be a source of frequent reference to every emergency surgeon.

Forbes.

Passive Vascular Exercises and The Conservative Management of Obliterative Arterial Diseases of the Extremities. By Louis G. Herrmann, A.B., M.D., Assistant Professor of Surgery, College of Medicine of the University of Cincinnati and the Cincinnati General Hospital, etc. Illustrated with 80 Engravings and 4 Colored Plates. 288 pp. $4.00. J. B. Lippincott Co., Philadelphia and London, 1936.

This volume is a timely one in view of the fact that at present there is much controversy as to whether or not pavex therapy is of value, and if so, in what conditions. Unfortunately, the author adopts a defensive attitude from the very beginning of his monograph. If there is as much value in pavex therapy as he indicated, he would certainly be justified in taking the aggressive rather than the defensive.

The most interesting feature of this book is the first chapter which deals with the historical development of knowledge regarding pressure apparatus as applied to circulation in the extremities. It was a revelation to find that suction was used as early as the seventeenth century. The chapter on physiology of blood circulation and the effects of environmental temperatures are also of great interest, as are those dealing with the management of peripheral vascular disturbances. The final chapters deal with the results of pavex therapy in various types of lesions. It is fitting that the first lesion dealt with is that of acute major arterial occlusion, as this is undoubtedly one field in which pavex therapy is of great value.

It is unfortunate that the author does not give statistical information on the results of treating the various lesions. This leads one to believe that perhaps the ultimate results would not be too promising. He cites cases of each type of vascular lesion in which pavex therapy was used, but unless one is reading critically he is apt to believe that all of these were markedly improved because of the fact that all of those described showed definite improvement. This volume comes at an opportune time in view of the fact that pavex therapy is so widely used and misused. It is unfortunate that the instrument is not under the supervision of individuals qualified to direct properly its use. This fact is quite universally true and will undoubtedly lead to many disappointments, and if not remedied will almost entirely discredit this very valuable adjunct in the treatment of certain types of vascular lesions.

The monograph should be at the disposal of and should be carefully read by anyone attempting to use pavex therapy or directing the use of the apparatus. It is after all largely a manual that could well accompany the apparatus as a part of its equipment. It is recommended to those interested in vascular lesions as it is very interesting and easy to read. FLOTHOW.

THE ADRENALS. By Arthur Grollman, Ph.D., M.D., Associate Professor of Pharmacology and Experimental Therapeutics and formerly Associate Professor of Physiology, in the Medical School of The Johns Hopkins University. 410 pp. $5.00. The Williams & Wilkins Company, Baltimore, 1936.

The manifest necessity of one or more of its products for the maintenance of life, as evidenced in Addison's disease, and the delayed success in isolating the hormone or hormones involved have helped to preserve the adrenal as a prize subject for speculation and as a prime product for exploitation. The investigation of the medulla early revealed its hormone. The intensive study of the remainder of the gland failed until recently to produce any factor essential for life. After a long time a product adequate to control the manifestations of Addison's disease has been isolated. With the isolation from the cortex of this product, certain problems have been illuminated, but others have remained as obscure as ever. The factor that stimulates the development of hirsutism and sex deviation has defied isolation.

The story of the revelations relating to the influences exerted by the adrenals is most satisfactorily outlined in this volume. The facts so far revealed are so clearly and succinctly presented that even the well informed lay reader should have but little difficulty in comprehending them. Likewise, the bunk which has been disseminated so widely and by some so advantageously from a financial angle has also been clearly exposed. The whole presentation is so rationally arranged, so clearly, competently yet relatively briefly discussed and so convincingly backed up by clinical manifestations, laboratory findings and appropriate bibliography that it leaves nothing to be desired except more revelations relative to unsolved problems.

An intriguing theory regarding the influence on sex deviation is propounded. This postulates, besides the generally accepted medulla and cortex, a third type of tissue designated as "androgenic adrenal tissue." The evidence and argument very convincingly present the tissue commonly described as "boundary zone," "fetal," "x zone," as the factor involved in the production of virilism and certain deviations in sex manifestations. The presentation offers a rational explanation of manifestations which previously seemed to develop without rhyme or reason.

For the student or practitioner interested in the intriguing problem of hormones and their influence for weal or woe, this book offers a double treat. First, it gives an incomparably good discussion of what is known about the adrenals and their influence on body economy; second, through the splendid arrangement, logical exposition, clear simple diction and thoroughness, it serves as a model for what the presentation of discussions on ductless glands should be. C. F. DAVIDSON.

A TEXTBOOK OF SURGERY. By American Authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S., Associate Professor of Surgery at Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital. 1608 pages with 1349 illustrations on 730 figures. $10.00. Philadelphia and London, W. B. Saunders Company, 1936.

The author states that the dominant plan of this textbook is to give the student a concise presentation of surgery, which is characterized by the maximum authority. This purpose is accomplished by contributions from one hundred and eighty-four writers, representing the leading medical schools and hospitals of the country, with few exceptions being actually engaged in teaching surgery to medical students. The contents offer the tested and accepted present day principles of surgery, debatable and incomplete methods being omitted. Besides the discussion of correct surgical treatment for all conditions included, etiology, pathology and diagnosis have been properly stressed. The material is presented under forty headings, each with varying numbers of subdivisions, each of these being accompanied by the name of the author. One will find in this volume useful suggestions for the treatment of every day surgical requirements. In many instances the contributors present their original work. The book represents a crystallization of the accepted surgical experience and research of today.

MULLEN.

ABORTION. Spontaneous and Induced. Medical and Social Aspects. By Frederick J. Taussig, M.D., F.A.C.S., Professor of Clinical Obstetrics and Clinical Gynecology, Washington University School of Medicine, St. Louis. Illustrated. 536 pp. $7.50. The C. V. Mosby Company, St. Louis, 1936.

The National Committee on Maternal Health inspired the production of this volume. Abortion is specified as one of the scourges that science can conquer. One of the forward movements of surgical advance has been the aseptic procedures established for the interruption of pregnancy. The author has assembled all available material bearing on this subject. In outlining the definition and scope of abortion he states it is estimated that 681,600 are obtained annually in the United States with no less than 4000 recorded deaths. It is asserted that the actual abortion deaths are probably nearer 10,000. An interesting historical review shows the antiquity and wide prevalence of this procedure. In considering spontaneous abortion its causes are enumerated which may include defective germ plasm, maternal deficiencies and in some cases endocrine disturbances.

Under treatment are described the advisable measures when abortion has already begun. These include the technic of dilation and emptying the uterus with necessary precautions to be observed. Missed abortion and molar pregnancy are duly considered. There is a discussion of therapeutic abortion both from religious and medical standpoints. Indications for this procedure include dead fetus, with mole and missed abortion, and a list of diseases which call for it with a living fetus, each of which is described at length. Under technic are mentioned nonsurgical methods such as drugs, hormones, irradiation. Under surgical procedures are enumerated the approved and safe methods. There are chapters on economic and domestic aspects of abortion as well as its legal aspects. In this volume one can find a very satisfactory presentation of the whole subject of abortion.

The Foot. By Norman C. Lake, M.D., M.S., D.Sc. (Lond.), F.R.C.S. (Eng.). Senior Surgeon and Lecturer on Surgery, Charing Cross Hospital, London, etc. 330 pp. $4.50. William Wood and Company, Baltimore, 1935.

This is a comprehensive book, devoted entirely to the foot. It is well written and is not ambiguous in any aspect. The subject is well covered, beginning with the evolution of the foot and ending by describing the most commonly accepted operative procedures. The author not only gives his personal views, but also those of other accepted writers in regard to foot strain and the various accepted methods of treatment both in America and England.

This volume can be highly recommended as a reliable reference to the student, practitioner and specialist. Its reading is well worth the time and effort of any physician who is called upon or has the occasion to treat any disease or deformity associated with the foot. The book is small in size, well illustrated, comprehensive and devoid of repetition. McLemore.

The Normal Diet and Healthful Living. By W. D. Sansum, M.D., Director of Metabolic Research of Santa Barbara Cottage Hospital, etc. R. A. Hare, M.D., Member of the Staff of The Sansum Clinic, and Ruth Bowden, B.S., Dietitian of The Sansum Clinic. 243 pp. $2.00. The Macmillan Company, New York, 1936.

The author states that more has been learned about the science of nutrition in the past twenty-five years than in any period of the world's history. Chapters in this book present considerations of the essential food substances, where they are found and the purposes they serve. There are discussions of food substances that give energy, including proteins, carbohydrates and fats and those that do not give any energy, such as minerals, water and fiber. Following a presentation of digestion and absorption there is a chapter on how the body uses food. The importance of proper care of the excretory functions emphasizes the harm done by drastic cathartics with suggestions of useful methods of producing regular evacuations. It is shown that the underweight fad may result in lifelong injury to health, while overweight may shorten the prospects of life. This book contains many useful suggestions regarding the regulation of diet.

Interpretation of Laboratory Findings. By Raymond H. Goodale, M.D., Pathologist, City Hospital, Worcester, Mass., etc. 170 pp. $2.25. F. A. Davis Company, Philadelphia, 1936.

The purpose of this book is to give to the physician laboratory data in compact form which he uses in daily practice. Part I, including normal values and interpretations of abnormal values of various body fluids and excretions, discusses hematology, blood chemistry, serology, urine, gastric contents, cerebrospinal fluid, sputum, feces, basal metabolic rate, liver function tests and transudates. In Part II diseases are listed in alphabetical order with results to be expected from laboratory tests pertaining to the diagnosis of each. Part III offers a discussion of physiologic pathology of body fluids and excreta, while Part IV gives directions for collecting and preparing body fluids and specimens.

The Study of Anatomy. Written for the Medical Student. By S. E. Whitnall, M.A., M.D., B.Ch. (Oxon.), M.R.C.S., L.R.C.P. (Canada). Professor of Anatomy in the University of Bristol, etc. Third Edition. Revised and Enlarged. 113 pp. $1.75. William Wood and Company, Baltimore, 1936.

The author states that anatomy is taught in too great detail and sometimes by teachers not in touch with its application to clinical medicine. The purpose of this book is to impress on the medical student that human anatomy must be considered in relation to the living body, physiology and other cognate subjects and future clinical work. This book does not deal with details of dissection. It has chapters describing the nature and principles of anatomy, practical methods of study with reference to books, teachers and lectures.

Urology in Women. A Handbook of Urinary Diseases in the Female Sex. By E. Catherine Lewis, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon to the Royal Free Hospital, Surgeon and Urologist to the South London Hospital for Women. Second Edition. 100 pp. $2.25. William Wood and Company, Baltimore, 1936.

The author states this is not intended as a complete treatise on urology, but emphasizes certain points with particular application to women patients. Many diseases of kidney, ureter and bladder are omitted, since these can be found in general textbooks on urology and surgery. It aims, however, to include all lesions, except venereal, of the female urethra. Urethral conditions discussed include caruncle, prolapse, urethrocele, fistula, inflammation, strictures, diverticula, calculi and tumors. At the same time there are brief descriptions of common diseases of bladder, ureter and kidney. The book is well illustrated, a number of illustrations being in colors.

The 1935 Year Book of Dermatology and Syphilology. Edited by Fred Wise, M.D., Professor of Clinical Dermatology and Syphilology, New York Post-Graduate Medical School, etc., and Marion B. Sulzberger, M.D., Assistant Professor of Clinical Dermatology and Syphilology, New York Post-Graduate Medical School, etc. 736 pp. $3.00. The Year Book Publishers, Inc., Chicago, 1936.

A year book should need little introduction. As the name implies it consists of abstracts of the literature pertaining to dermatology and syphilology. The editors stress the foreign literature in an attempt to give the profession facts that would otherwise be more or less inaccessible. In addition at the end of each chapter there is a fairly complete bibliography. Each year the present editors have taken some common dermatologic condition and given a fairly complete treatise from the therapeutic standpoint. For 1935 the subject is eczema. This is written in very readable style and should be of particular interest to the general practitioner. J. W. Shaw.

A Textbook of Histology. By Joseph Krafka, Jr., Ph.D., M.D., Professor of Microscopic Anatomy, University of Georgia, School of Medicine, Augusta. 246 pp. $2.50. The Williams and Wilkins Company, Baltimore, 1936.

The author states that the interest in histology is not confined to the student, but has a special fascination for those interested in its technical manifestations. Each of the thirty-six chapters, short and condensed, deals with a specific element or organ of the body. Thus are considered the cell, epithelia, fibrous connective tissue, cartilage, bone, muscular tissue. Each organ is discussed, beginning with a brief anatomic study, then following with the specific histologic features. One interested in histology will find in this book instructive, concise descriptions.

Eye, Ear, Nose and Throat Manual for Nurses. By Roy H. Parkinson, M.D., Head Oculist and Aurist to St. Joseph's Hospital, San Francisco. 232 pp. $2.25. The C. V. Mosby Company, St. Louis, 1936.

The purpose of this book is to provide a classroom work that may be used in nurses' training schools. Technical terms are avoided as much as possible, debatable questions and theories being omitted as unnecessary for the nurse. There are chapters on the throat, nose, ear, eye, different diseases of each being specifically mentioned. There is a description of symptoms with brief account of treatment. Particular attention is paid to the nursing accompanying each disease under consideration. The book should be valuable in teaching nurses.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume II. Forty-Sixth Series, 1936. 327 pp. $3.00. J. B. Lippincott Company, Philadelphia, Montreal, London.

In this volume are contributions by fifteen writers connected with medical schools of this country. Three surgical contributions discuss glomal tumors, surgical management of colonic carcinoma, and surgical diseases of the gastrointestinal tract in children. Under obstetrics and pediatrics there are two papers dealing with asphyxia neonatorium and use of protective vaccines in tuberculosis. Under medicine there are nine contributions dealing with the circulatory system, goiter, emphysema and other subjects. These discussions are interesting and informative.

International Medical Annual. A Year Book of Treatment and Practitioner's Index. Edited by H. Letheby Tidy, M.A., M.D., (Oxon.), F.R.C.P. and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Fifty-fourth Year 555 pp. $6.00. William Wood and Company, Baltimore, 1936.

This annual publication offers a review of progress in the medical sciences during 1935. It offers in compact form the most complete review available of published advancements in all branches of medicine from all parts of the world. These are arranged in alphabetical order, beginning with "Abdominal Pain in Children" and ending with "Yellow Fever." Following each subject discussed is a bibliography referring to books and journals of the world bearing on this particular topic. One can obtain a great deal of information from this volume.

TRUTH ABOUT MEDICINES

PROPAGANDA FOR REFORM

Vitamin D Milk. Because of the practicability of administering vitamin D to infants directly in milk, this fluid fortified with the vitamin, either by the addition of concentrates, by the feeding of irradiated yeast to the cow, or by the direct irradiation of the milk, has received special attention. Clinical experience with the different types of "vitamin D milk" in the prevention and cure of rickets in infants has indicated that, unit for unit there appears to be no great difference between the antirachitic value of the three types. If a slight difference actually existed, it was thought to be in favor of the milk irradiated directly. A recent experimental investigation on chicks by Haman and Steenbock, however, seems to indicate that in this species a distinct difference exists between the antirachitic activities of "yeast milk" and of "irradiated milk." The results demonstrated that "irradiated milk" is approximately ten times more effective than the same number of rat units of "yeast milk" and, further, that the antirachitic activity of the former compares favorably with that of cod liver oil and irradiated cholesterol. A distinct difference between the vitamin D content of the cream and that of the skim milk portion of "irradiated milk" and "yeast milk" was also described. The foregoing investigation gives no support to the possibility that the baby chick can be used with greater accuracy than the rat for ascertaining the antirachitic effectiveness of different vitamin D containing substances in infants. However, it is of some interest in this connection that, according to a recent clinical study by Davidson, Merritt and Chipman, the feeding of "yeast milk" to premature infants as the sole source of vitamin D proved to be inadequate for achieving complete protection against rickets. It would seem that the question of the relative merits of various antirachitic agents is far from solved and that there is an urgent need for further carefully conducted and controlled studies of the problem, particularly in full-term and premature infants. (J. A. M. A., May 9, 1936, p. 1664.)

The Status of Certain Questions Concerning Vitamins. As a result of the increasing importance of questions concerned with vitamin containing foods and medicinal preparations, the Council of Pharmacy and Chemistry and the Committee on Foods of the American Medical Association appointed a joint cooperative committee for study of this field with instructions to report to the two parent groups. The following is a summary of the Council's decisions based on the Cooperative Committee's recommendations: The Council decided that it would consider vitamin products, for advertising both to the public and to the profession, on the basis of the general principle that advertising to the public of vitamin preparations for prevention of disease (but not for the treatment of disease) shall be permitted provided the dosages are within the established concentrations which are considered safe; also that the Council shall not accept for sale to the public concentrates or pure forms of vitamins when the facts as to dosage are not available or when the daily dosage recommended is beyond that considered safe; furthermore, that usefulness and necessity as a prophylactic must be established. The Council, after considering the report of the Cooperative Committee's deliberations, set the dosage of cod liver oil for infants at two teaspoonfuls daily. In February, 1935, the Council voted to inform manufacturers of accepted products that under conditions of ordinary usage there does not appear to be necessity for use of hydroquinone for the proper preservation of cod and halibut liver oils and that, until more convincing evidence in favor of the practice is submitted, it may not be permitted. The Cooperative Committee considered the further arguments advanced by the manufacturers in favor of the use of hydroquinone, but felt that this was not sufficient evidence of the harmlessness of the use of hydroquinone. The Council approved the conclusion of the Cooperative Committee that the previous action should stand but that it be not enforced for another six months in order to permit firms opportunity to gather evidence of a worthwhile nature and that in the meantime no claims for stabilization shall be made. The Council

(Continued on page 284)

THE UNIVERSITY OF WASHINGTON

PRESENTS

The Twentieth Annual Course of Medical Lectures and Clinics July 20-24. Guggenheim Building and Hotel Edmond Meany

FACULTY

Harvey B. Stone, Surgery. Professor of Surgery, Johns Hopkins Medical School.

Topics:
1. Carcinoma of the Rectum.
2. Carcinoma of the Colon.
3. Gall-bladder Disease.
4. Surgery of the Stomach.
5. Surgery of the Thyroid Gland.
6. Intestinal Obstruction.

James H. Means. Medicine. Professor of Medicine, Harvard Medical School and Medical Chief Massachusetts General Hospital.

Topics:
1. Some Organic Diseases with Important Psychotic Symptoms.
2. Presenting Symptom, Anemia—Then What?
3. Rx. Thyroid U. S. P. XI: When Is This Prescription Indicated?
4. Acute Lung Abscess: One of Surgery's Irish Dividends.
5. Treatment in Aid of Homeostasis; i.e. Dehydration, Acidosis, Alkalosis, Hyperpyrexia, Anoxemia, etc.

Wilburn Smith, Gynecology. Professor of Gynecology, College of Medical Evangelists.

Topics:
1. Some Acute Abdomens.
2. Pelvic Inflammatory Diseases.
3. Descensus and Displacements of the Uterus.
4. Uterine Bleedings.
5. Alien Tumors of the Pelvis.
6. Uterine Carcinoma.

John Lewis Pollock, Neuropsychiatry. Professor of Nervous and Mental Diseases, Northwestern University.

Topics:
1. The Differentiation between Functional and Organic Neurological Disease.
2. Neuroses and Visceral Neurology.
3. The Physiology of Referred Visceral Pain.
4. The Differential Diagnosis of Diseases of the Spinal Cord.
5. The Differential Diagnosis of Diseases of the Brain.
6. Early Somatic Symptoms of Psychogenic Origin.

Lectures at 9, 10, 11 am., 1 and 8 p.m. Clinics King County Hospital 2:30 to 5:30 p.m.

The course of lectures will be given at Guggenheim Hall on University Campus; afternoon clinics at King County Hospital; Monday evening banquet, no-host dinners followed by lectures by a member of the faculty at Meany Hotel.

Banquet Monday 7 p.m. No-host dinner each evening at 7 followed by lecture at 8.

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The Acousticon has been accepted by the Council on Physical Therapy of the American Medical Association. Journal A. M. A., 3/21/36, Vol. 106, No. 12, p. 1007.

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adopted the recommendation of the Cooperative Committee that firms be asked whether or not they have been able to obtain any better evidence to warrant the claim that carbon dioxide when used in fish liver oils increases palatability and prolongs stability, and that in the meantime such claims be not recognized until these firms can produce the satisfactory evidence required. The Council adopted a statement of permissible prophylactic and therapeutic claims for vitamins A, B (B_1 and G), C and D which will appear in New and Nonofficial Remedies, 1936. The Cooperative Committee recommended that the Council declare that there is no evidence to indicate that vitamin E has therapeutic merit and that the Council do not accept any vitamin E preparations. The Council voted in agreement with an opinion of the Cooperative Committee concerning malt preparations with cod liver and viosterol, claimed to contain vitamins B_1 and G, to inform manufacturers of accepted products of this category that no claims for the vitamin B and G content of such preparations will be recognized, and that after Jan. 1, 1937, not even the statement that these vitamins are present should be made, because of the danger of arousing false implications. The Council concurred in the Cooperative Committee's recommendation (1) that although the Council is never opposed to experimental investigations under proper directions and facilities, it does not feel that there is at this time sufficient evidence to warrant the acceptance of viosterol preparations of very high potency; and (2) that it decline to suggest to the Wisconsin Alumni Research Foundation that the marketing of such high potency preparations to the medical profession by its licensees is advisable. (J. A. M. A., May 16, 1936, p. 1732.)

The Nomenclature of the Corpus Luteum Hormone. The present unsettled statement of endocrinologic nomenclature has been the cause of increasing confusion in recent years. In an effort to remedy this deplorable situation, the Council on Pharmacy and Chemistry solicited the cooperation of a number of experts who have made fundamental contributions to glandular physiology. This group has been termed the Advisory Committee on the Nomenclature of Endocrine Principles. This Committee has considered the question of choosing an appropriate name for the one definitely established hormone of the corpus luteum. This hormone is defined and quantitatively estimated by its property of acting on the rabbit's uterus to produce histologic changes (progestational changes) resembling those observed during early pregnancy and pseudopregnancy. It has been demonstrated and agreed that this substance is represented by the formula $C_{21}H_{30}O_2$ (Δ^4-17-acetyl-androstenone-3) and that no other natural substance has as yet been found having the same physiologic properties. On the recommendation of the Advisory Committee, the Council adopted the following terms: (1) *progesterone* to indicate the chemically pure substance having the formula and properties mentioned above; (2) *progestin* as a general term to indicate the substance (and other chemically allied substances having similar action, in case any such compounds are subsequently discovered) without reference to the state of chemical purity, for convenience in clinical and biologic speech and writing. (J. A. M. A., May 23, 1936, p. 1808.)

Annual Meeting of the Council on Pharmacy and Chemistry. The following were among the subjects considered at the annual meeting of the Council on Pharmacy and Chemistry: The Council discussed extensively the plans for the reorganization of the Council on Pharmacy and Chemistry, the Council on Physical Therapy and the Committee on Foods. The reorganization contemplates a federation of these groups particularly for administrative purposes and as a means of handling overlapping problems. This reorganization is not for the purpose of amalgamation. The Council adopted the recommendation of the Cooperative Committee on Policy, Rules and Procedure that the separate seals of the individual councils be retained. The Council adopted certain regulations in reference to the clinical testing of vitamins in vitamin-containing preparations. The Council voted that in cooperation with the Committee on Foods there be appointed an editorial committee under whose supervision there will be devised a contemplated series of articles on vitamins. It discussed the statement on the allowable claims for vitamins, the matter of dosage of cod liver oil for infants, and lay advertising of vitamin-containing preparations. A report on these questions was published in The Journal A. M. A., May 16, 1936, p. 1732. The consensus of the Council was that the published statement on the labeling and marketing of liver preparations has been found satisfactory. The Council adopted the following statement in reference to advertising claims for aminophylline preparations: "It has been claimed that in certain cases relief of pain has followed the use of theophylline preparations in cardiac conditions. The evidence that this was due to the theophylline is not convincing, and there is no evidence that the improvement, if it occurred, was due to coronary dilatation." The Council voted to recognize as acceptable for the nomenclature of bacteria the generic names proposed in the final report of the committees of the Society of American Bacteriologists on characterization and classification of bacterial types (J. Bact. 5:191, 1920). The Council discussed the situation with reference to the new alkaloid of ergot and adopted the name "Ergonovine" as the nonproprietary designation of this alkaloid. The Council objected to the use by pharmaceutical houses of the personal endorsement signature of a physician, and decided that articles so labeled and advertised are not acceptable. The Council voted that the referee prepare a report on the present status of the injection treatment of hernia for submission to the Council with a view to ultimate publication. The Council voted that after July 1, 1936, the Council consider no new bismuth preparations unless they show some distinctive advantages over those already accepted. The Council discussed the labeling of products subject to deterioration, and adopted a motion that any products of this sort be labeled with a statement of the composition at the time it leaves the manufacture, and is dated; furthermore, in case the product deteriorates or is subject to deterioration, that a supplemental statement be made as to the amount and/or rate of deterioration, either by indicating the percentage of deterioration per year or the actual minimum amount at the end of the year. (J. A. M. A., May 23, 1936, p. 1806.)

Treatment of Arthritis by Bee Venom. Attempts have been made repeatedly to place this form of treatment on a scientific foundation. Almost without exception medical reports have been inadequate—inadequate because little attempt at classification of the type of rheumatic diseases treated has been made. Terminology used is most indefinite and indicates lack of familiarity with types of diseases concerned. The terms "rheumatoid heart affections," "endocrine polyarthralgia," "arthritism" and others are used without definition. Beck expressed the opinion that venom therapy has been abandoned because of difficulties in use of live bees. This has been obviated by commercial preparations: apicosan, immenin, apisin and British bee venom. Beck has attempted to stimulate interest in this method by a review of literature on the subject. He exhibits a lack of critical appraisal of his material, and accepts laymen letters as important evidence. According to Beck, the physiologic effect of bee venom is comparable to histamine, which has been advanced by some for the treatment of rheumatic diseases. These ideas of Beck are not in accord with those accepted by the greater number of writers on the subject. The gross error in Beck's presentation is that he has omitted details of his own experience with treatment. It is stated that patients with "arthritis and rheumatism" possess immunity to bee venom but in spite of this it has also been repeatedly stated that the results from injection of bee venom in arthritis arise through the production of "a slow, gradual, progressive and comfortable immunization." It is not made clear how one can immunize a person already immune.

Refined and Concentrated Antipneumococcic Serum Type VII—Lederle. The Council on Pharmacy and Chemistry reports that the Lederle Laboratories, Inc., presented Refined and Concentrated Antipneumococcic Serum Type VII (Lederle) for consideration by the Council. It is claimed

Continued on page 11)

DRS. C. B. WARD, ARTHUR BETTS and MILO HARRIS

The new Seattle office at 414 Cobb Building was recently opened. During the last six months the equipment for this office has been under construction and the installation was completed early in May.

X-ray treatment cases which are not ambulatory will be placed in the Cobb Building Hospital. The office is on the same floor as the hospital.

The equipment includes:

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to be useful in the treatment of pneumococcic pneumonias of this type, which is one of the twenty-nine groups of pneumococcic previously considered to be group IV organisms. The identification of these individual types and the clinical use of the specific serums have been carried out under the direction of Park by his associates Cooper and Bullowa. In Bullowa's series of 1,000 cases, about 7 per cent were found to be due to type VII organisms. The firm did not submit any bibliography for the preparation. The Council agrees with Cooper that the results are encouraging, and to a lesser extent with the firm's statement that the results are suggestive of a definite therapeutic effect. It is pointed out, however, that comparative percentages based on such a small series may be entirely misleading. In view of these factors, the Council postponed consideration of this antiserum until these workers, or others, have extended the use of this agent to a larger series of cases, and authorized publication of the foregoing preliminary report. (J. A. M. A., May 2, 1936, p. 1564.)

PERSONALITIES ARE TRANSFORMED BY DRIVING MANIAS

DRAWING ROOM POLITENESS SHOULD PREVAIL ON ROADS ALSO

Motor mania has made gentlemen into boors and square-shooters into bullies. Eleanor Everet attacks such bad examples of "Tomorrow's Drivers" in the July *Hygeia.*

To combat poor driving technic in the next generation of drivers, Miss Everet describes the manner in which the New Jersey and New Hampshire high schools have surmounted this problem. Fifty-seven of these have added courses in correct automobile driving to their curriculums.

The instruction shies away from a routine recitation of rules of the road. Although state regulations are studied and discussed, a broad survey is made of the entire field of safe driving. Emphasis is placed on the causes and the prevention of accidents, the mechanics and safety features of the modern car, the mental and physical requirements of good driving, and the place of the autmobile in modern living.

A cut-down chassis is frequently brought to the school for use in a lesson in mechanics. Motion pictures, slides and posters complete the other study facilities.

When a student has completed the driving course he is given two examinations, one prepared by the instructor and the other by the motor vehicle department of the state. Parts of the state examinations are consequently waived when a student applies for a driving license.

Other cities and states are following the example thus set.

Drivers may, generally speaking, be put into four classes. There is the individual who as a father and a business executive may have a reputation for the greatest consideration and judgment; but in his car he dons a cover-all of indifference or bravado.

The second type of poor driver is the person whose sight, hearing or strength is defective. The next category embraces the person who finds himself going home after a long, hard day or a long, hard social evening. His senses are dulled by fatigue, carbon monoxide or alcohol.

Finally, there is the driver who provides his family and friends with repeated thrills. Casually watching his driving, he regales his listeners with tales of past exploits. He usually manages to add another experience to his repertoire before each journey is completed.

It might be well if all admonitions on behalf of safe driving were as much to the point as this sign in a Pennsylvania village: "Slow. No hospital."

VITAMINS IN CANNED FOODS

I. VITAMIN C

• The history of scurvy is as old as the history of exploration and conquest. Its ravages among early explorers and invaders are recorded in the oldest pages of history, due principally to the fact that during extended sea voyages or treks by land, dependence had necessarily been placed almost entirely on foods preserved by the crude methods of the day.

Scurvy was the first vitamin deficiency disease to be controlled by dietary management. In 1757, Lind recognized the fact that some substance in foods exerted a specific protective action against scurvy (1). As early as 1804, the daily lime juice ration became compulsory in the British Navy (2).

However, it remained for modern biochemical science to establish the chemical identity of this antiscorbutic factor. Vitamin C is now known to be identical with cevitamic acid (levo-ascorbic acid) and is as yet the only vitamin to be synthesized in the laboratory (3).

There would appear to be no valid reason why scurvy should ever constitute a serious threat to the health of the average American infant or adult. Development of refrigerated transportation for raw foods and improvements in modern methods of food preservation, specifically canning methods, make available to the consumer during the entire year a large variety of foods possessed of valuable vitamin C contents. In addition, the modern trend towards education of the layman, in regard to the vitamin C requirements of both the infant and the adult, should also assist in complete eradication of infantile and adult scurvy from America.

Many canned foods are to be valued as contributors of vitamin C. Nutritional research has indicated that canned products such as the citrus fruits or citrus fruit juices (4), the more common fruits (5), and vegetables or vegetable juices, are important sources of the antiscorbutic factor (6). Modern canning procedures afford a good degree of protection to this labile vitamin, with the result that the canned food can be relied upon to supply amounts of vitamin C to the diet consistent with the amounts of the vitamin originally contained in the raw food from which it was prepared.

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Vitamins: A Survey of Present Knowledge. Page 187 Medical Research Council, Special Report 167. 1932. His Majesty's Stationery Office, London.
(2) Vitamins in Theory and Practice. Page 86, L. J. Harris, 1935. Macmillan, New York.
(3) 1933 J. Chem. Soc. *136*, 1419.
(4) 1930 J. Home Econ. *22*, 588.
(5) 1935 Amer. Jour. Pub. Health, *25*, 1340.
(6) 1933 Ind. Eng. Chem. *25*, 682.

This is the fourteenth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

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PRINCIPLES OF DIAGNOSIS IN THE DIGESTIVE FIELD*

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The main object of the physician is and must always be the proper care and the best possible treatment of his patient. To make this possible a correct or at least a probable diagnosis is essential. This is peculiarly so in the digestive sphere, for in the acute abdomen the difference between a correct and incorrect diagnosis often spells the difference between life and death, while in the chronic abdomen an incorrect or too late diagnosis may minimize or entirely dissipate the chances of complete recovery as, for example, in carcinoma.

Unfortunately there is no royal road to diagnosis in this field and yet there is no field in which it is more urgent, no field where the difficulties are greater. Correct diagnosis here is rarely easy, often difficult, sometimes impossible. What are the causes for this difficulty? They are many and some are inherent.

1. The close approximation of the digestive viscera to the other organs and to each other. The diaphragm is all that separates heart and lungs from upper abdominal organs. The pelvic and lower renal organs and the lower abdominal viscera lie cheek by jowl, while pylorus, duodenum, hepatic flexure and gallbladder are so close to each other that a hand can cover them all.

2. The extreme sensitiveness and lability of both the secretory and motor digestive mechanism to changes in the blood stream.

(a) Physical changes, such as those due to cardiovascular disease with its chronic passive congestion.

(b) Chemical changes met with in all infections, both acute and chronic, and in diseases of metabolism, due either to abdominal products or normal products in excess as, for example, diabetes and chronic nephritis.

3. The peculiar innervation of the digestive tract, a true autonomic system with two sets of fibres, sympathetic or splanchnic, parasympathetic or vagus, essentially antagonistic in their action to each other; incidentally, the same type of innervation met with in the main in the thoracic viscera and pelvic organs. These two sets of fibres, connected as they are with the digestive center in the diencephalon and probably the higher digestive center as well, furnish the mechanism of the innumerable reflex digestive disturbances met with in disease elsewhere, for the digestive neuroses and for the digestive syndromes in organic cerebrospinal disease.

4. The practically complete absence of true pain fibres in the abdominal viscera; in other words, the absence of a true localizing apparatus so essential and so beautifully developed in the superficies of the body as a protective mechanism, but not needed here where the viscera are shielded from external trauma by bone, sinew and muscle, by fat and skin. It is true that there are pain fibres in the parietal peritoneum. A few possibly accompany certain of the splanchnic nerves and vessels, but they are

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*Read before the annual meeting of University of Oregon Alumni Association, Portland, Ore., March 2, 1936.

usually negligible in the analysis of pain, and pain *per se* is not met with in abdominal disease. It is usually the expression of change in tonus or tension, spasm or atony, projected through a viscerosensory arc and interpreted by us as pain. This seems to us the best, though not the only, explanation of what we call "abdominal pain."

5. Our utter inability to explore directly the major portion of the digestive tract, for from duodenum to upper sigmoid is a veritable *terra incognita,* where direct study of organic or functional disease is impossible.

It is obviously impossible, if we realize all these factors, to discuss the diagnosis of digestive disease unless we first call attention to some of the confusing diagnostic pictures due to one or several of the factors mentioned above, most of them examples of true referred pain, that is, disease elsewhere in the body, symptoms exclusively or mainly digestive. This is a fascinating field, this field of referred symptoms, but we have not the time to more than touch upon certain of the peculiarly interesting and more important examples which must always be kept in mind before concluding that the disease with which we are dealing is really digestive in origin.

For instance, practically all the acute infections have a prodromal digestive syndrome, but there are some in which the picture is very confusing, as the appendicitis-like picture sometimes produced in measles before the eruption, the similar picture met with in a few cases of typhoid fever and acute tonsillitis, the acute abdomen of undulant fever, and the unusual abdominal picture sometimes presented in severe influenza.

That there is a close relationship between disease of the heart and gastric symptoms dates back to Hippocrates. My old chief, Dr. Osler, used to always say, in the old and in the fat, the complaint of simple gastric dyspepsia often is the first sign of the failing heart and is relieved by a little digitalis, when no drug based on its gastric origin is effective. Again, a few cases of coronary disease have symptoms entirely below the diaphragm, usually simulating acute gallbladder attacks. And to a lesser extent the reverse is also true, that is, unrecognized gallbladder disease with only cardiac symptoms simulates sometimes coronary or stenocardial attacks, at other times progressive cardiac failure. I have been singularly interested in this group of cases and I believe I was the first to call attention to the latter of these two.

Incorrect diagnosis is often fraught with calamity, for normal gallbladders have been removed surgically for true coronary disease and patients have been invalided for long periods of time as cardiopaths where the symptoms are entirely due to a diseased gallbladder, usually associated with stones, and where removal of the gallbladder brings about what seems almost a miraculous cure.

Again, we must never forget that certain diseases of the blood have singularly interesting digestive equivalents, as the carcinoma-like syndrome of certain cases of pernicious anemia and the acute abdomen of sickle cell anemia often diagnosed and even treated as acute appendicitis.

The abdominal symptoms in respiratory disease are, of course, well known: central pneumonia with its appendix-like picture, often only able to be differentiated by the fluoroscope or by roentgen plate; the abdominal symptoms in diaphragmatic pleurisy; while in pulmonary tuberculosis it is rather interesting to remember that about one-fourth of all the cases that have at first only digestive symptoms, are first treated as a gastric neuroses and valuable time is lost. Incidentally, in this connection, I have seen several cases with extreme distension and flatulence following phrenicotomy for tuberculosis, while it is worth remembering that in the newer operations for essential hypertension as the cutting of the splanchnics above or below the diaphragm, an extremely atonic dyspepsia often develops, sometimes even a temporary adynamic ileus.

One should always keep in mind, as regards the renal apparatus, the simulation of peptic ulcer or gallbladder disease by renal calculus; of acute appendicitis by pyelitis or true ureteral stricture—a rare condition, incidentally—and of carcinoma of the stomach by chronic interstitial nephritis, for the nausea, the achlorhydria, the anorexia, sometimes even the presence of blood in the stool occasionally present an extremely puzzling picture.

In the pelvic field an ovarian cyst with twisted pedicle, a ruptured extrauterine pregnancy or right sided salpingitis is too often incorrectly diagnosed as an acute or chronic appendix. A retroflexed uterus in a neurotic girl may give vague and bizarre, and sometimes severe digestive symptoms, while in too many instances pregnancy has not been recognized and the patient with her nausea and vomiting treated as a gastric neurosis until the true cause of her symptoms is obvious.

One should also not forget the acute abdomen met with in diabetes, unquestionably a true abdominal ketosis, with symptoms so severe as to suggest immediate surgery and relieved almost instantaneously by insulin.

The unusual nervous mechanism of the digestive tract makes it a peculiarly frequent vehicle for expression of every variety of functional nervous disease—psychasthenia, hysteria—while one must also remember that in certain of the organic cerebrospinal diseases, the first symptom, sometimes the only recognizable symptom, is purely digestive, as the gastric or colonic crises of tabes and the vomiting, not always projectile, of brain tumor.

These are some of the interesting examples of referred symptoms, where the sole or major symptoms are in the digestive sphere without any organic pathology therein. But to add to our confusion, we have the simulation of one digestive disease by another; a persistent atonic dyspepsia, often nocturnal, of the "fair, fat and forty," entirely due to unsuspected gallbladder disease; the simulation of gallstones by peptic ulcer and vice versa; the ulcer-like syndrome of an unrecognized chronically diseased appendix, an extremely interesting group; cases of carcinoma of the stomach with no gastric, only intestinal, symptoms; and colonic neoplasm with only symptoms referred to the stomach; the projection of the symptoms of appendicitis to the umbilical region on the left side of the abdomen with no local symptoms in the lower right quadrant; the similarity of pancreatic neoplasm and that of the transverse colon; and the irritable colon or mucous colitis with localized, not generalized symptoms, suggesting a diseased appendix or diseased gallbladder.

Verily these puzzles are hard to unravel and yet they are met with every day in our practice and they must be solved if the proper treatment is to be applied and the patient cured. The abdomen is still being opened for a definitely diagnosed gallstone colic, when the case is in reality a coronary thrombosis. The surgeon is still chagrined by removing a normal appendix and a few days later finding the skin eruption of measles or the pyuria of a right sided pyelitis; still appendix and gallbladder are removed when an irritable colon is the cause of the symptoms; and far too often mistakes are made in differential diagnosis between diseases of the appendix and pelvic pathology.

How, then, can we reduce these possible errors to an irreducible minimum? Not, I am afraid, by any short cut to diagnosis, not by any golden path that leads us directly to the hidden treasure; only by patient and thorough investigation of each case, utilizing every procedure that may help us, be it history, physical examination, laboratory test or roentgen study. In many cases even these are not enough because only our experience and our judgment can put the pieces together so that the puzzle is solved and a true picture, or at least a probable diagnosis or a working hypothesis obtained.

It is obvious, therefore, that no case with digestive symptoms should be considered a case of digestive pathology until we have exhausted every extragastrointestinal cause by a very complete history of all other parts of the body and a very thorough general examination before we study the digestive tract itself. Sometimes from this examination we find our diagnosis, often we get a clue as to the diagnosis or as to contributory factors to the underlying pathology. In fact, the interrelation of digestive and other diseases and the frequency of referred symptoms make it axiomatic that before we touch the abdomen, before we perform one specific laboratory test, it is essential that a thorough general survey be made.

From the family history we sometimes get points of interest, for while heredity does not play a very large part in digestive disease, it must play a role in the body form or psychic pattern which may be inherited and may make one susceptible to certain disease. An extremely neurotic family history with evidence of functional disturbance, or a certain body form may be inherited and there is unquestionably a tendency of certain of these types to develop certain diseases. Thus, in the wide costal angle type with horizontal rib and large hypochondrium, the herbivor type, gallbladder disease and duodenal ulcer are much more common than in the opposite, or carnivor type, with its narrow costal angle, vertical ribs and contracted hypochondrium, and here the irritable colon, colitis and functional disturbances are much more common. There is some evidence that in a very broad sense a tendency to malignant disease is inherited, though this is of little help in the vast majority of cases, while occasionally some disease, such as syphilis in the parent, may play a definite role in the disease of the children.

The past history of the patient tells us much more. Certain diseases are likely to be followed by certain sequelae; a small proportion of typhoid cases, for instance, subsequently develop gallbladder disease; a certain number of cases with a history of syphilis develop tabes with its gastrointestinal crises; severe influenza often leaves the digestive tract in a very sensitive condition and often is the beginning of a long functional gastrointestinal dyspepsia; a past history of cardiovascular or renal attacks may be very helpful in analyzing a difficult case, while the pelvic history often plays a considerable role in subsequent digestive symptoms. For instance, while there is some evidence against it, the main body of evidence is certainly in favor of pregnancy being one of the contributing causes of cholecystitis and cholelithiasis, possibly by the opportunity for infection, possibly through chemical channels.

The habits of the patient often are of help—his habits as to work, play, food, tobacco, his habits of eating and habits of living, because in these we often get the primary cause of subsequent digestive conditions such as functional disturbances of various kinds, certain cases of gastritis and possibly ulcer and gallbladder disease. In other words, everything in the past history should be analyzed so that we will be armed with a complete picture of the patient's past before we study his present digestive syndrome. This, of course, must be supplemented by a thorough general physical examination before the abdominal examination is made. This, I think, is essential because, if we reverse the process and attack the abdomen first, we are extremely likely to neglect the thorough and complete examination of the rest of the body.

Thus, from the examination of the eyes we may find the patient is anemic and the cause may be digestive; slight jaundice may suggest disturbance of biliary tract or liver, and arcus may suggest general arteriosclerosis. The study of the eye grounds may give us our first clue to intracranial disease, arteriosclerosis and nephritis, each of which may have simply digestive symptoms, while no eye examination is complete without careful testing of the eye reactions. An Argyll Robertson pupil may tell us that what has been suspected as a severe abdominal lesion may be in reality of organic nervous origin.

The ears occasionally suggest the possibility of a digestive syndrome being a Ménière's disease. Nose, throat and sinuses give us information about possible upper respiratory infection which may play a role in the digestive syndrome. Study of the teeth will not only give us information about pyorrhea and infection, but will tell us whether the patient has a proper mechanism for chewing, cutting and grinding his food. In fact, it is probable the mechanical deficiencies in teeth play quite as large a role as periapical abscesses and gingivitis in the causation of digestive diseases.

From the tongue perhaps we learn more about the condition of the mouth than of the digestive tract, but in certain cases it is helpful. The skin, if exceptionally moist with dripping cold hands, may be one of the links in diagnosing a neurosis, while if excessively dry, may suggest an unrecognized hypothyroidism.

Examination of the heart and lungs may occasionally give us the basic pathology of a purely digestive syndrome, while the examination of the urine may suggest that the symptoms we have regarded as digestive may in reality be due to stone, pyelitis or nephritis. The blood may tell us not only of anemia and its type, but from its increased leucocytes or variation in the differential count may give us invaluable information not only as to the possible cause of the abdominal condition but as to its severity. Thus, for instance, an eosinophilia may suggest an uncinariasis or trichinosis.

The bones and joints should be examined because arthritis has its digestive sequelae and the digestive equivalent of both organic and functional diseases of the central nervous system are so many, so diversified and often so bizarre that a very complete examination of this system is obligatory in every case.

Then, and only then, armed with the knowledge which has come from the general study of the history and the general examination of the patient, should we approach the digestive tract itself, recognizing that every case presented is really a problem, a research in pathologic physiology or pathologic anatomy and can only be correctly diagnosed by keeping constantly in mind the normal anatomy and the normal physiology of the tract, and by comparing our findings with these.

In making our diagnosis nothing is more helpful than the history of the case. Often with it alone diagnosis is possible; in many cases without it, impossible. It was a very wise clinician who once said, "from the history alone the diagnosis can be made in most cases; physical examination and laboratory tests are often purely confirmatory." However, to be of value, it must be thorough; it must be exact; it must tell us of the time of onset, the mode of onset, the apparent cause of onset. Compare, for example, the vagueness of the early symptoms of a simple functional dyspepsia with the clear-cut first symptoms of a gallstone colic, the hunger pain of a duodenal ulcer or the symptoms of an acute appendicitis. Often some almost forgotten fact in the history may be brought to light by thorough questioning, as an early attack of abdominal pain, entirely forgotten but which may have been an attack of acute appendicitis; passage of clay colored stools for a few days; a slight, transient jaundice, mucus or blood in the stool, surprisingly frequently forgotten in the lapse of years. In the incipiency of the disease we must analyze every factor. Did the cause seem to be physical or psychic? Did the attack come from worry and mental strain, some emotional disturbance or shock? Did it follow some indiscretion in eating or drinking? Was it the sequel of some form of infection?

We must delve into the patient's habits of eating and drinking, his domestic problems, factors in his work and factors that have played some part in his emotional life; his habits as regards exercise, sleep and play. All of these may play some role in the initiation, in the recurrence and progression of his digestive picture.

Armed with this more or less general knowledge, we can then approach the history of the present illness. The character of the pain, if pain was present? Its location? Did it stay localized or did it extend? Where? To back, to right shoulder, etc.? Has it been constant or intermittent? Intermittent pain is extremely helpful in our diagnosis of certain conditions as appendicitis, gallbladder disease, peptic ulcer. If there have been remissions, how long have been such periods? In ulcer, for instance, in certain cases the attacks come on with almost clocklike regularity, strange to say, more often in spring and fall, though the explanation for this is not determined. In other conditions there is no regularity as regards the attacks of pain, as for example in gallstone and appendical attacks. Has the pain any relation to posture or time of meals or time of day? Is there a seasonal incidence as mentioned before in the case of duodenal ulcer?

We must discuss appetite. Lack of appetite is excessively rare in ulcer, though fear of food may be present often. Appetite is variable in the neuroses. It is often deficient in gastric atony and in carcinoma, but not always in the early stages of the latter. Has there been nausea and vomiting? If so, what is their character? Has blood, fresh or coffee-ground or black, been vomited? Is there gas and distention? These are very common and banal symptoms as a rule, but sometimes almost diagnostic as in the excessive flatulent nocturnal dyspepsia in women with gallbladder disease. Is there evidence that air swallowing is playing a role in gaseous distention? Periodic difficulty in swallowing in a nervous individual may be very suggestive of cardiospasm, better called esophagospasm. Progressive dysphagia in the aged is extremely suggestive of carcinoma, though not invariably so, as occasionally it may be intermittent.

We must discuss the condition of the bowels, loose, constipated. Their form and consistency; their size and the presence of abnormal substances; mucus, pus, blood, parasites. A ribbon-like or sheep dung stool is usually due to an irritable colon with a spastic colitis, but may be met with in organic obstruction. A black stool following a collapse with no apparent cause may tell us it comes from bleeding along the digestive tract. A glistening, fatty, so-called butter stool may suggest pancreatic disturbance; a frothy, light yellow stool may suggest a disturbance in starch digestion, the fermentative diarrhea of Schmidt; while a light gray frothy stool may suggest we are dealing with a tropical or nontropical sprue.

We must analyze the apparent causes of these variations from the normal. Do they represent lack of exercise, habit, or have they an organic basis? We must never forget, for instance, that intractable constipation may be the only sign of an unrecognized hypothyroidism or that it may be the earliest and for a time the only symptom of carcinoma of the large bowel.

In regard to the reverse condition, diarrhea, while usually simply the expression of a transient infection or simply of dietetic origin, in many cases it is of much more moment as, for example, the false diarrhea of carcinoma with obstruction in the lower colon; or diarrhea as an early sign of hyperthyroidism, or a gastrogenous diarrhea due to gastric achylia and cured almost instantaneously by hydrochloric acid; or the pancreatogenous diarrheas, or those of pellagra, sprue and sprue-like condition; and extremely rarely where there are certain idiosyncrasies toward certain foods, notably the inability to digest and assimilate the high molecular saturated fats such as the meat fats, and the polysaccharides such as starch and the disaccharides such as cane sugar, and the ability to entirely digest the monosaccharides as glucose, and the lower molecular unsaturated fats such as olive oil. Finally, what might be called diarrhea, post-diarrhea, where the condition may be kept up by the great loss of chlorides from the initial trouble, where the blood chlorides will be found to be very low and successful treatment is sodium chloride by mouth.

And, finally, once more, a careful analysis of the patient's pain, for in most cases it is pain that brings the patient to the doctor and real pain generally, though not always, is due to some form of organic trouble.

While there is some question about the true mechanism of pain in the abdominal conditions and while the severity of pain depends not only on the extent of the lesion but even more upon the psyche of the individual, the stability or instability of his nervous apparatus and his reaction to stimuli, nevertheless it is from pain that we often get our greatest help, sometimes our only means of making a correct diagnosis.

More than a half century ago Hilton wrote: "Every pain has its distinct and pregnant significance, if we will but carefully search for it." But if this is to be true we must study it in the most intensive way: its onset; its type; if localized or not; is it constant or intermittent; its relation to food, to exercise, the effect of rest. There is no better rule, incidentally, than this: never commit yourself to diagnosis or treatment until you have seen the effect of complete bodily and mental rest. Besides being of great diagnostic value, rest is one of our very best therapeutic agents in combatting abdominal pain.

Libman has recently said: "In the future all investigations concerning pain must take into consideration the question of natural sensitiveness, while the possible relationship of sensitiveness to pain to the general physical and mental character of the individual constitutes another field of investigation."

It is a fascinating subject, this analysis of pain. One could spend many hours discussing it; in trying to unravel the pain of the hypersensitive and of the hyposensitive groups. Even with all these limitations, however, it is from the study of pain that we get our best knowledge. Most diseases have definite pain patterns, although there are exceptions in every case and no diagnosis should be made without confirmatory evidence.

Some examples of these pain patterns are interesting. The typical picture of an acute appendical attack but the exceptional case with pain in the umbilical region, upper right quadrant, in the pelvis, or even extending down the right leg to the knee; the pain picture of gallstone colic. Here, again, certain cases where the pain is only in the right shoulder or in the left upper quadrant or in the region of the heart. The pain of duodenal ulcer with its periodicity, its punctuality—one can almost set a watch by it—and yet, as exceptions, cases with no pain or showing a typical picture of gallbladder disease. The devastating pain of acute pancreatitis with its complete circulatory collapse. The pain of the irritable colon and mucous colitis, the pain of rectal fissure. The tragedy is that in that most serious of all gastrointestinal lesions, carcinoma, whether of the stomach, the small or large intestine, there is often no pain pattern—a real tragedy because the symptoms are not clear cut, serious disease is not suspected and early diagnosis not made.

Even at risk of repetition, in all cases with acute abdominal pain, until the cause is definitely determined and the proper treatment planned, there is no wiser rule than this: absolute rest, complete starvation, no purgation.

Never forget the enormous role a good history, a complete history, must always play in our diagnosis of abdominal conditions where direct examination is in so many instances difficult or impossible. Charles Mayo once said: "It is often not the knowledge of anatomy and physiology that tells the surgeon the significance of a certain pain, but it is experience with that same type of pain at former operations and what was found when the abdomen was opened."

Then and only then, armed with the knowledge, often invaluable, sometimes even diagnostic, obtained from the general history, the general physical examination and the special digestive history, can we approach the examination of the digestive tract itself. And first, notwithstanding the innumerable attempts at short cuts by laboratory methods, our approach must still be through those grand old standbys — inspection, palpation, percussion and auscultation. Just a word in regard to these. To make them efficient, the light must be good and both patient and physician be in comfortable positions. Many a slight peristaltic wave, an asymmetry, a faint pulsation, has been missed by the lack of this. Inspection has gone much farther afield by the introduction of the esophagoscope and gastroscope, the latter much more helpful because of recent technical improvement, and the sigmoidoscope and proctoscope, the last, at least, within reach of all.

In regard to palpation, there are four wise rules to remember. First, never palpate until the patient is as completely relaxed as possible, both mentally and physically; second, always palpate *last* the area of complaint, first the other portions of the abdomen; third, if relaxation of the abdomen is impossible by the ordinary means due to nervousness or pain or excessive fat or very rigid musculature, try palpation in a hot bath; and fourth, never forget that in the digestive sphere no abdominal palpation is complete without a digital rectal examination. Osler, incidentally, once said: "The main difference between a general practitioner and a consultant is that the latter always made rectal examinations."

Finally, laboratory studies. Of course, they are essential in most cases, but rarely alone give us our diagnosis. The tendency of the present age is unquestionably to depend far too much upon laboratory and roentgen findings, far too little upon careful history and thorough physical examination, although, of course, the real clinician and the true diagnostician utilizes all of these procedures before he is willing to make his final decision.

As regards the various laboratory tests, the test meal is singularly disappointing in the vast majority of cases. It is usually a frail rod upon which to lean, whether the procedure be the old or the fractional method. It is interesting to find high acid readings in a case of suspected ulcer; low acid readings if there be suspicion of carcinoma; but many ulcers give low readings, some cancers high. The achlorhydrias are interesting because of the number of conditions in which a diminution or complete absence of acid is frequently found, as carcinoma, diseases of the thyroid, nephritis, chronic myocarditis, the arthritides, sprue and pellagra, chronic gallbladder disease, but the main value of the test is really in cases of suspected pernicious anemia when the diagnosis cannot be made unless there is a true achylia by a fractional test with histamine. Of course, however, in some of the other conditions mentioned above, a true achylia may also sometimes be met with.

Since the introduction of the roentgen ray and the enormous information it gives us as to motor function, the study of the fasting stomach contents has been practically disregarded, but I find it still interesting and sometimes useful in a few cases as, for instance, the fasting hyperchlorhydria and hypersecretion in duodenal ulcer, the amount and character of the residue in suspected obstruction, the large amount of bile often found in conditions associated with low acid readings and with a relaxed pylorus.

In studying the duodenal contents, the views are very divergent, some believing the information is invaluable, others that it is of little value except in isolated cases. In this latter group unquestionably the study of the bile as to color, crystals, bacteria, parasites and pus cells may occasionally be helpful. It is, however, well to remember that, while the normal duodenum is practically sterile, in any of the myriad conditions in which gastric subacidity or anacidity is met with, whatever the primary cause of these, the duodenum becomes a very hothouse of all varieties of microorganisms.

Too little work has been done on the qualitative and quantitative estimations of the pancreatic ferments in the duodenal contents. The method is not difficult but is only valuable if done under the fluoroscope so that we are sure we are in the duodenum. In certain cases, notably carcinoma of the head of the pancreas, chronic pancreatitis and functional pancreatic disturbances, notably in the pancreatogenous diarrheas following a certain small percentage of cholecystectomies, such quantitative estimations are extremely valuable, although not quite so definite as the estimations of the pancreatic ferments in the stool.

But the fatal weakness of all these methods, test meal and study of the contents of fasting stomach or duodenum, is that in each case there are so many variables that the findings are often extremely hard to interpret and often valueless. After all, laboratory findings to be really helpful should always give results that are definite and clear cut, not clouded as they always are here by so many other factors.

It is needless to call attention to the importance of stool examinations in all gastrointestinal cases, macroscopic and microscopic. It is worth remembering that in the examination for parasites, the chances of finding them is from three to four times greater if the stool is obtained through the sigmoidoscope and examined immediately. It is also worth remembering that by the newer methods, tubercle bacilli can be found in the stool just as easily as in the sputum. Last of all, every stool should be examined for occult blood, and this is essential in all cases where bleeding is suspected or possible. It is very comforting to find a negative benzidene test in a suspected carcinoma or after an ulcer cure, and here again, if there is rectal bleeding, the stool can be obtained above the bleeding area through the sigmoidoscope.

Some lay great stress upon the study of the bacteriology of the stool, especially the finding of streptococci therein, but we have been bitterly disappointed in this field, although we have done a great deal of work in it. Many people forget certain fundamental facts in regard to stool bacteriology; first, that while normal streptococci are much more prevalent in the small bowel, colon bacilli in the large bowel, in any condition associated with hypermotility and diarrhea, an enormous number of normal streptococci are washed down from above; and in the second place, that in conditions with ulceration, the blood and mucus are the perfect culture medium for streptococci, while they inhibit markedly the growth of the colon bacillus. Study, for instance, a bit of mucus in mucus colitis or better still the stool after epsom salts, and see how the normal content of from one to two per cent streptococci has been raised to sometimes over ninety per cent. In our clinic, Paulson, one of my associates, has studied for a great many years the bacteriology of the stool by a variety of methods, including the study of material obtained at surgical operations from all levels of the digestive tract. We are absolutely convinced that every microorganism to which pathogenic properties have been ascribed may be found in some portion of the normal digestive tract.

To many, radiographs and fluoroscopic study, the former giving us the statics, the latter the dynamics of the digestive tract, are the last word, sometimes the only word, in diagnosis. This is not true and will never be true even if the examination be complete, the swallowing be carefully watched, the barium meal be thin or thick according to the individual case, the viscera examined in various positions under varying degrees of pressure, and the colon be studied not only by the ordinary method but by barium enema as well.

Of course roentgen findings are valuable, possibly invaluable, but they are not infallible. They should not be considered the final word in diagnosis of abdominal conditions. After all we do not see the pathology itself, simply the barium shadow, and exactly the same shadow may be produced by a variety of conditions, some organic, some entirely functional. For instance, adhesions may produce a defect which the best radiologist will read as evidence of malignancy. A persistent reflex spasm may simulate ulcer. In some cases of ulcer in certain positions in stomach and duodenum, and of diffuse infiltrating carcinoma of the stomach, no abnormal defects may be found. But perhaps the greatest reason for lack of infallibility is because of the human factor which must enter into the question, for the plates are read and interpreted by individuals and the human mind, even the human eye, varies markedly in what it sees and what it interprets. Take a set of difficult plates to a group of expert radiologists and see how often the readings will be different. Walter Raleigh gave up the writing of his reminiscences, toiled over for many years in his cell in the Tower, because his observations of men finally made him conclude that no two people see the same thing exactly alike.

In the case of plates of the gallbladder, here, again, we have many sources of error, especially in the cases where there is faint shadow or no shadow. One seems to have forgotten the brilliant work of Rous of many years ago, showing that in healthy dogs the concentrating power of the gallbladder varies from threefold to elevenfold, probably due to anatomic peculiarities. If the same obtains, as it probably does, in human beings, how can we get diagnostically excited by faint shadows without any other definite findings. If a bladder is persistently grossly deformed, if stones are seen, these, of course, are definite findings, but in the less definite cases remember the possibilities of error, both positive and negative. For instance, in a long analysis of a series of suspected gallbladder cases we find an error, as proven by subsequent history, often surgical, in about twenty per cent of our cases. First, diagnosed as pathologic by the plates when normal gallbladders were found; and second, cases where normal gallbladders were reported and at operation disease, often marked disease, and frequently gallstones were found.

In the final analysis, roentgen findings, although probably our one most valuable single diagnostic procedure, should never be our court of last resort, but should be used in conjunction with all the other findings in building up our diagnosis.

Recently much has been written about food allergy as a cause of digestive symptoms; symptoms simulating colitis, an ulcer syndrome, acute appendical attack, etc. While this undoubtedly happens in a certain proportion of cases, it is unquestionably tremendously overemphasized. Skin tests, whether intradermal or by the scratch method, are often singularly unreliable. Elimination diets sometimes help, and if we have positive findings by either or both of these procedures in a case where there is a family history of some allergic manifestation and where in the patient's own past history there are other symptoms of allergy, asthma, hay fever, etc., it should be given careful consideration as a possible cause of the syndrome, but not blindly to the exclusion of other possibilities.

I wish I could make a diagnosis from fractional test meal, from bile stained cell or tiny crystal in duodenal contents; from streptococci in the stool or slight irregularity in contour in stomach or intestine; but unless I am wrong, no such short cut is possible in the vast majority of cases. Diagnosis based on one procedure alone, while occasionally brilliant, in the vast majority of instances brings but repentance in sackcloth and ashes. For it is a long and rough road, this road to correct diagnosis. Was it not Chaucer who quaintly sang:

> "The lyfe so short;
> The craft so long to learn."

And to travel this road safely, we must be anatomist and physiologist, surgeon and gynecologist, internist and neurologist, as well as special student, if we would reduce our failures to an irreducible minimum. Always remember that, if we profit by our failures, and there must always be failures in this field however careful we are, and not gloat too much over our successes, there is hope that our path will be smoother and our burden easier to bear.

I am quite sure that, in order to advance knowledge and to stimulate research, specialism is necessary, but in the intensive study in one special field there is always the inherent danger of neglecting the body as a whole, to miss the woods for the trees. This is a great and real danger. Professor Ryle puts it well when he says: "Hearty and well directed and correlated specialism is, and will remain, the lifebreath of science, but the waste of time and money in the world through the drive toward isolated pigeon-holed research on the part of young men, whose education has lacked breadth from the beginning, and the very nature of whole appointments and high tasks deprives them of the stimulus they most need, is to me a sad thought."

It is far safer to believe with Haldane that in studying biologic phenomena, we must always keep the whole organism in view, we must never forget that universality which was the *philolosophia prima* of Lord Bacon and we should travel hand in hand with Sir William Gull, when he pleaded for the general view and the avoidance of a too narrow pathology.

UPPER ABDOMINAL ADHESIONS*

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Upper abdominal adhesions are stumbling blocks in the path of the surgeon. Too often, because of obscurity of symptoms, they tax the patience of the physician as well as the endurance of the patient. Under my observation have come cases which, because of the severity of symptoms, have required immediate surgical interference; others not responding to prolonged medical treatment and weary of chronic invalidism have at last turned to surgery for relief.

In order to better understand the reasons for the crippling effects of adhesions of the upper abdomen, particularly between the stomach and adjacent structures, a brief review of their anatomic relations seems advisable. Normally the stomach lies in the upper abdomen in rather close proximity to the liver. Due to its normal mobility, it naturally changes its position following the ingestion of food, especially when one is standing; it may even gravitate far below its normal position.

The musculature of the stomach is composed of longitudinal, oblique and circular layers, so arranged as to aid in the proper mixing of food preparatory for intestinal digestion and to empty its contents into the duodenum. When food enters the stomach, peristaltic waves occur every fifteen or twenty seconds and with the spasmodic contraction of the cardiac as well as the pyloric end, the food is thoroughly mixed into a liquid chyme. At intervals of every three or four minutes, varying somewhat with the kind of food taken, the pylorus opens and the circular muscles of the stomach contract, forcing the food into the duodenum, where the process of digestion continues; hence the necessity for normal mobility of the stomach.

As our experience broadens, we stress less and less the importance of the position of the stomach in the abdominal cavity. It may be prolapsed very much below its normal position and yet perform its normal function without any noticeable discomfort to the patient. Difficulty arises when the stomach is fixed by adhesions to the liver or parietal peritoneum, thus interfering very materially with its physiologic function. Roentgenography with the use of barium will help demonstrate this as well as total or partial obstruction in the stomach or in the intestinal tract.

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* Read before a meeting of Western Surgical Association, Rochester, Minn., December 6-7, 1935.

It is my belief that serious postoperative symptoms, particularly following gallbladder operations, may be caused by such adhesions which can be relieved by surgery. Experience has taught us to be extremely cautious in operating for adhesions *per se*. Surgery should only be resorted to after the adhesions have been demonstrated by the use of roentgen ray and careful consideration given to the clinical course of the patient's symptoms. In the early days of surgery, it was not uncommon for a patient to be operated on for appendicitis or for some pelvic disease and then half a dozen more times for adhesions which were not only useless but in fact often did more harm than good. Careful selection of operative cases is of paramount importance.

In the small series of upper abdominal adhesions I am reporting, there were (1) adhesions between the stomach and liver, the stomach and the parietal peritoneum which naturally interfered with the normal peristaltic action of the stomach; (2) adhesions between the duodenum and gallbladder fossa, causing obstruction to the outlet of the stomach; (3) adhesions between the loops of the jejunum distal to gastroenterostomy, causing high intestinal obstruction.

Postoperative adhesions may be caused by a variety of conditions. (1) We may consider infection one of the most potent causes of adhesions. Infection may be due to the fact that it was present at the time of operation or faulty technic may result in contaminating the operative field during operation; (2) rough handling of the tissues; (3) use of packs that are excessively hot; (4) bile drainage following gallbladder operations undoubtedly causes adhesions; (5) leaving denuded areas of the bowel or the tissues, that is, failing to peritonealize the raw surfaces at site of operation.

These are probably the principal causes, but it is interesting to note that some patients seem to be much more prone to form adhesions than others. It is wise to consider every operative case as potentially likely to form adhesions, and every precaution should be taken to prevent their formation, as they minimize the good effects of the operation, in fact, often making the patient worse off following the operation than he was before.

CASE REPORTS

Case 1. Mrs. O. S. L., 41 years of age. Cholecystectomy July 1, 1920, demonstrated a definitely diseased gallbladder containing stones. She did very well for two or three weeks, when she began to have occasional vomiting and marked distress following eating. This gradually became worse and skiagraphic examination six weeks later showed very marked pyloric obstruction. Diagnosis of obstructive adhesions was made and she was operated on. Adhesions were found at the site of the gallbladder fossa, obstructing the duodenum (fig. 1). Posterior gastroenterostomy was performed. She made a satisfactory immediate recovery and left the hospital two weeks later. She has remained well since then.

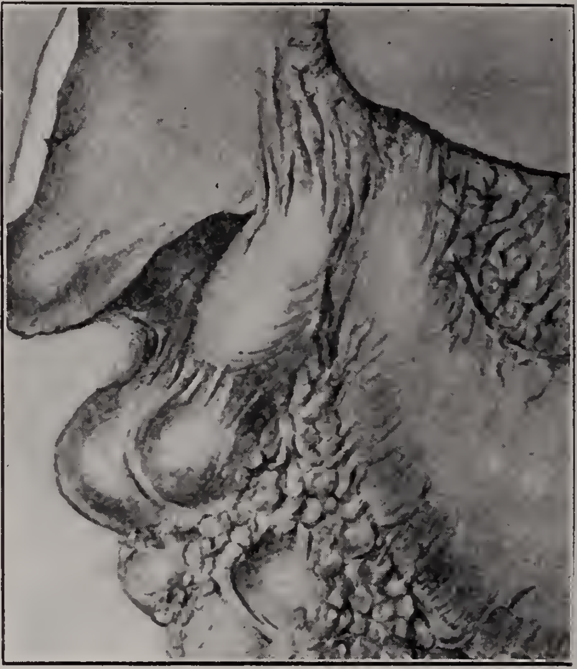

Fig. 1. Adhesions between liver and duodenum causing pyloric obstruction.

Case 2. Mrs. L. U., 49 years of age. Cholecystectomy and appendectomy were performed on July 3, 1924. Gallbladder was adherent to the duodenum in such a way as to cause a constriction of the duodenum in that area, and there was a marked periduodenitis which I considered secondary to the acute cholecystitis. A moderate degree of hepatitis was also present. She continued to vomit off and on for two days. Then she was able to retain food and felt well. Two weeks after the operation she began to have nausea, was hardly able to retain any food. Her pulse became very rapid, went to 150.

After consultation, it was decided that she was suffering from adhesions at the site of the gallbladder fossa, causing pyloric obstruction. She was operated on July 30, when adhesions between the duodenum and gallbladder fossa were found. After gastroenterostomy she made a satisfactory recovery and a recent report from her states that she has remained entirely well.

Case 3. Mrs. F. C. K., age 44. Bilateral salpingectomy was done in 1902, followed by two operations for intestinal obstruction due to adhesions. In 1921 she had a gallbladder operation elsewhere, drained bile for thirteen months, when she was operated on again and the biliary fistula closed.

I saw her first in 1926 when she stated that since the gallbladder operation she had never been entirely free from pain, at times very severe and always worse after eating. Nearly everything she ate caused pain; has lost thirty pounds in the past year. Radiographic examination of the stomach showed the stomach very much enlarged but no six hour residue.

On account of the deformed duodenum as shown in roentgenogram and the distress she was having after meals, it was considered likely that she had postoperative adhesions causing partial pyloric obstruction and operation was

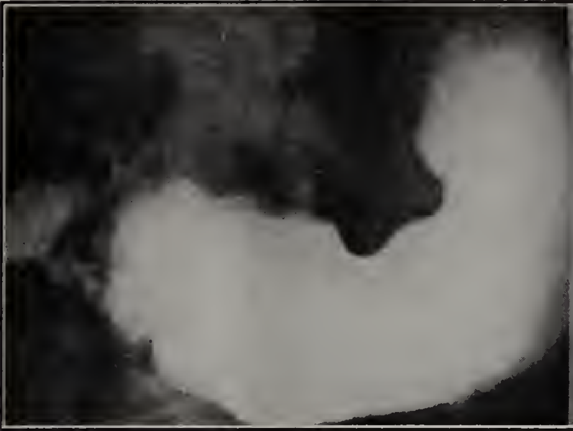

Fig. 2. Six hour residue caused by adhesions between duodenum and liver.

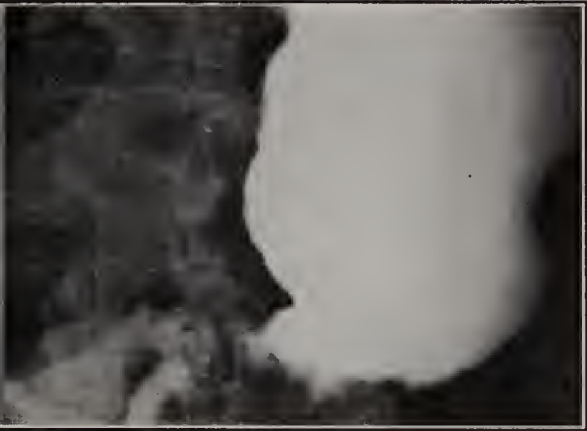

Fig. 3. Transposition of stomach to left of midline, brought about by gastric resection (Billroths 2).

advised. Very dense adhesions were found between duodenum and gallbladder fossa and parietal peritoneum. Posterior gastroenterostomy was performed; the adhesions were not disturbed.

Four days after this operation, patient developed high intestinal obstruction and her condition became so grave that operation was deemed urgent. Operation revealed acutely kinked loops of jejunum just distal to the gastroenterostomy, caused by adhesions between the loops. These adhesions were severed and the obstruction relieved.

There were no other complications and she made a satisfactory recovery. She felt much better for a while, but after a few months she had a recurrence of gastric trouble, complaining of nausea, food distress and occasional pain in epigastrium. She had so much trouble that she would stay in bed for days at a time and on account of food distress her appetite was greatly impaired. Inasmuch as she had been subjected to seven operations, I felt that everything had been done that could be done by surgery. One of our leading internists, called in consultation, agreed with me that her case was entirely medical and she probably had become neurasthenic due to long continued suffering.

About two and one half years after I operated on her, she was seized with a definite attack of gallbladder colic followed by jaundice, indicating she had biliary trouble, probably a common duct stone. She was subjected to another operation. On account of very dense adhesions in the region of the gallbladder, with some difficulty a small contracted gallbladder was exposed with a stone lodged in the cystic duct, and a coin-shaped stone in the common duct was found, partially obstructing it. The gastroenterostomy performed two and one half years before seemed to be functioning normally and I am sure was necessary for her recovery. A recent report from her stated that she has remained well since the last operation.

Case 4. Mrs. D. M. T., 59 years of age. I saw her first on Nov. 25, 1927. She gave a long history of gastric trouble. A preoperative diagnosis was made of chronic cholecystitis and possible duodenal ulcer. Radiograph showed some deformity of duodenal cap and a trace of six hour residue. Operation was performed Jan. 12, 1928, when a large gallbladder containing a good sized stone was found with walls of gallbladder considerably thickened. Adhesions between gallbladder and duodenum were found which would account for the deformity shown in the skiagraph taken before operation. Retrocecal appendix was bound down by adhesions. Cholecystectomy and appendectomy were performed, but we were unable to demonstrate an ulcer of the duodenum. She was better for a few months, when she became worse again. She lived at some distance and I only saw her occasionally. She came in to see me again on March 18, 1929, complaining of considerable distress in the stomach following meals, eructations and a good deal of gas; her food often would be regurgitated undigested.

Radiographic examination showed almost entire barium meal retained in the stomach after six hours (fig. 2). Diagnosis was made of postoperative obstructive adhesions and she was operated on again. There were rather dense adhesions extending between gallbladder fossa and duodenum and there seemed to be a thickening of duodenal wall posteriorly. Posterior gastroenterostomy gave her considerable relief for a few months.

She came to see me again about five months after the second operation. She complained of considerable gastric disturbance, worse three or four hours after meals. Gas eructations were quite marked. She felt better at times but had lost considerable weight. No abdominal tenderness was noted on this examination. Another skiagraphic examination was made of the stomach and about twenty per cent of barium was left in the stomach after six hours. She was sent home and put under the care of her local physician. I heard from her occasionally. The distress seemed to persist and gradually grew worse. Finally she completely lost her appetite and naturally lost a great deal of weight, only weighed ninety pounds, though her normal weight was one hundred and fifty.

As she did not respond to medical treatment and diet, she again reported to me. On examination, gastrojejunal ulcer was considered likely. Surgery seemed to be her only hope of relief. Operation June 16, 1934 revealed the pyloric end of the stomach densely adherent to the left border of the liver. Stoma of gastroenterostomy easily admitted two fingers and no evidence of gastrojejunal ulcer was noted. The omentum was fixed to the parietal peritoneum. Findings indicated a motility disturbance of stomach with some obstruction of jejunum from adhesions distal to gastroenterostomy.

Operation: Adhesions between the stomach and liver were freed and a pylorectomy was done, leaving the gastroenterostomy undisturbed. Entirely relieved from her symptoms, she made a satisfactory recovery and has gained forty-five pounds in weight. She writes that she feels better in every way. Roentgen examination made recently shows stomach transposed to the left of the midline, functioning normally (fig. 3).

Case 5. Mrs. J. C. B., age 32. Preoperative diagnosis, cholecystitis with stones.

Operation, July 24, 1931: Gallbladder considerably enlarged and thickened, contained stones and was densely adherent to first part of duodenum. Cholecystectomy was

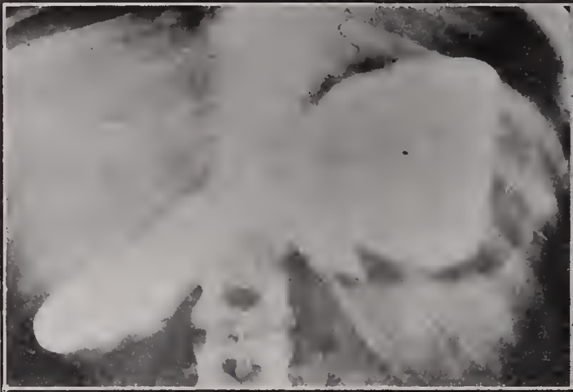

Fig. 4. Gastric retention caused by adhesions between stomach and left lobe of liver.

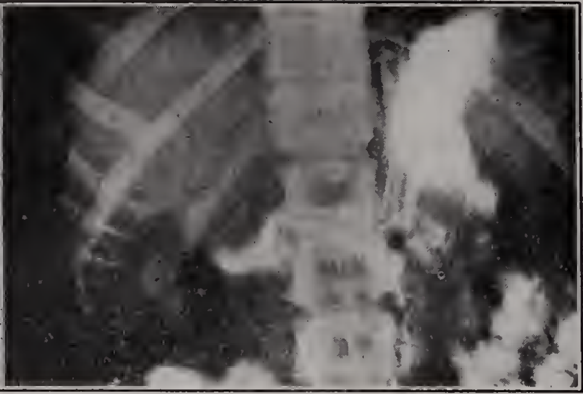

Fig. 5. Skiagraph of stomach, showing stomach fixed to left border of liver.

performed. She made an uneventful recovery. Patient was quite well for a number of months, then she began to have stomach trouble again, occasional vomiting, food distress, etc.

Radiographic examination showed forty per cent six hour residue. Diagnosis of postoperative adhesions was made and she was operated on April 13, 1933. Pyloric end of the stomach and lesser curvature were found densely and quite firmly adherent to the left border of the liver. Adhesions were freed and, to prevent them from reforming, a strip of parietal peritoneum was sutured so as to cover the denuded border of the liver. She made a satisfactory recovery. Recent radiographic findings show there is about ten per cent six hour residue in the stomach. She has quite a marked ptosis of stomach which might account for the residue. A recent report stated that she is very well.

Case 6. Mrs. W., age 40. She was operated on elsewhere for empyema of gallbladder in 1916 when the gallbladder was drained. Two years after the cholecystectomy she had a recurrence of gallbladder colic and symptoms of stomach trouble, food distress, gas eructations. In November, 1933, she became very nervous, perspired freely and had marked palpitation, very severe vomiting after nearly every meal and lost thirty-six pounds in three months. Radiographic examination made at the time indicated that she had marked gastric retention which was probably due to adhesions. The stomach was found fixed to the liver (fig. 4).

She was operated on Jan. 25, 1934 elsewhere. Gastroenterostomy was performed on account of gastric retention. When she left the hospital she weighed one hundred thirty-four pounds. Remained pretty well for four months and then began to vomit a great deal and often vomitus contained bile. She lost her appetite and weight went down to one hundred thirteen pounds. Radiographic examination indicated the stomach emptied very rapidly, due undoubtedly to the fact that it was adherent to the liver on the right and fixed to the mesocolon on the left by the gastroenterostomy, so that it could not function normally.

I first saw her July 3, 1934. I was called by her physician, and as she was having very severe vomiting and did not respond to medical treatment, surgery seemed indicated. Diagnosis of postoperative adhesions and cholecystitis was made. At that time I found dense adhesions between pylorus and lesser curvature of the stomach and liver.

Cholecystectomy was performed and adhesions between stomach and liver were freed. The gastroenterostomy was explored and I found it was placed too far to the left of the stomach. The stoma was very large, easily admitting all four fingers. The gastroenterostomy was ablated. The stomach was found anchored to the liver at the lesser curvature and fixed at the greater curvature by the gastroenterostomy, so that it was impossible for the stomach to function, and the effect on the patient was the same as though there had been a total gastrectomy, indicated by the rapid emptying of the stomach (fig. 5).

She improved following this operation until September, when she became very nervous, lost weight, had palpitation, perspired freely, had very rapid pulse. Metabolic rate was plus seventy-five. An intrathoracic goiter had been diagnosed before the last operation, but at that time her gastric disturbance was considered the more important.

It was quite evident that the intrathoracic goiter had become very toxic and was preventing her recovery, so I operated November 3, 1934, removing a very large intrathoracic goiter which extended to the fifth rib. She made a satisfactory recovery following this operation. Though she is recovering very slowly, as would be expected from a patient who has been subjected to three major operations in nine months, yet she is much improved. There is danger in this case of a recurrence of the adhesions between the stomach and liver.

Case 7. Mrs. J. C. H., age 56. This patient called to see me January 29, 1935. She gave a history of having been operated on sixteen years before when her appendix was removed and stomach explored for ulcer. None was found. Six months later gastroenterostomy was performed by another surgeon. Since the second operation she has had more or less stomach distress, loss of appetite, eructations of sour fluid and gas. The last and most severe spell commenced six months ago and persisted since then, losing nearly forty-five pounds in weight. Her physician considered the probability of an inoperable cancer and she was sent here for roentgen therapy.

Operation February 12, 1935. A large atonic stomach was found, densely adherent to the liver and parietal peritoneum. The adhesions were freed and the stomach was resected from pylorus to the gastroenterostomy. She made a satisfactory recovery and has been much better in every way. She has gained over thirty pounds in weight and has taken up her work which she had given up on account of poor health.

SUMMARY

In this small series of cases we found adhesions between the gallbladder fossa and duodenum and lesser curvature of the stomach and liver, causing serious complications requiring operative interference. Two were completely relieved following gastroenterostomy, where adhesions had formed between the gallbladder fossa and duodenum so as to cause pyloric obstruction. Another case was relieved by a gastroenterostomy but not until a remnant of gallbladder and common duct stone were removed two and one-half years later. There were four cases where adhesions were found between the pylorus and the lesser curvature of the stomach and the left border of the liver. In these cases there is naturally an interruption of peristaltic waves of the stomach which causes a stasis in the stomach, having much the same effect as pyloric obstruction with nausea and vomiting, although there may not be a true obstruction. In these cases the distress following the ingestion of food is almost as marked as where there is a true pyloric obstruction. Loss of appetite is also especially noticeable.

Two of these cases in which a gastroenterostomy had been done previously, the adhesions between the stomach and liver were freed and a pylorectomy was done without disturbing the gastroenterostomy. This type of operation has some definite advantages. It gives an excellent opportunity to peritonealize the denuded areas and transposes the stomach to the left, well away from the liver. Both of these cases have made excellent recoveries.

In two other cases, only the adhesions were freed followed by marked improvement, but I am afraid there is a likelihood of the adhesions recurring. As a prophylactic measure in preventing the formation of such disturbing adhesions, I consider frequent changing of position of patient immediately following operation helpful.

As most of us have been at times considerably disturbed because of a certain percentage of failures in our abdominal cases, particularly following cholecystectomy, I would like to emphasize that such patients deserve our most careful attention, as there is the possibility, as shown in the foregoing cases, that their persistent difficulty may be due to functional gastric disturbances brought about by postoperative adhesions.

THE BONE MARROW. R. H. Jaffé, Chicago (*Journal A. M. A.*, July 11, 1936), asserts that the improvement in the technic of biopsies of the bone marrow has added a valuable method to the diagnostic laboratory procedures to which the clinician can resort in the cases in which the examinations of the peripheral blood fails to give definite information. The importance of the examinations of the bone marrow in vivo becomes evident if one considers the fact that the circulating blood does not always reflect the condition of the bone marrow. Great differences exist sometimes between the cellular content of the blood and that of the bone marrow which may be the source of diagnostic errors. Since the biopsy of the bone marrow is expected to become widely used in clinical medicine, he presents a brief discussion of the normal bone marrow and of the changes that are observed in some of the important disturbances of blood formation.

ORTHOSTATIC HYPOTENSION

REPORT OF SIX CASES AND A REVIEW OF THE LITERATURE*

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The term "postural hypotension" was first applied by Bradbury and Eggleston,[1] in 1925, to a condition characterized chiefly by a marked fall in the systolic and diastolic blood pressures when the patient changed from the recumbent to the erect position. The term "orthostatic hypotension" was suggested by Laubry and Doumer[2] for this condition because the term postural hypotension did not indicate which posture produces the hypotension. We prefer the term "orthostatic" because it means pertaining to, or is caused by standing erect.

In the majority of cases of orthostatic hypotension the following abnormalities are found: (1) a sharp decrease in systolic and diastolic blood pressures,** with syncope or marked weakness when patient stands; (2) deficient sweating, either localized or generalized; (3) a failure of the pulse rate to increase markedly when the patient assumes the erect posture; (4) accentuation of symptoms in hot weather; and, (5) the patient secretes larger volumes of urine when he is recumbent than he does when he is erect. Other relevant signs or symptoms in some of the cases reported in the literature were: (1) an appearance of youthfulness not in accordance with the actual age; (2) a slight lowering of the basal metabolic rate; (3) signs of organic changes in the nervous system; (4) loss of libido, perhaps with impotency; (5) pallor of the skin, and (6) concentration of blood urea around the upper limit of normal.

REPORT OF CASES

We wish to report the following cases which were seen at The Mayo Clinic but which have not been reported in the literature.

Case 1. A woman, aged forty-one years, who was the mother of three healthy children, registered at the clinic, January 6, 1936, because of weakness and syncope which occurred when she stood erect. Previous to the onset of the present illness, she had done her housework and had taken part in other activities which had required a moderate degree of physical effort. About seven years before the patient came to the clinic, she first had noticed that with sudden change from the lying to the sitting position or from the sitting to the standing position she had become weak, her vision had become blurred, and she had had a feeling of faintness which frequently had led to unconsciousness. Any exertion, such as lifting a heavy object, reaching above her head or straining at stool, also had caused the attacks. Her condition had become rapidly worse; she had been unable to walk or eat while sitting and she frequently had been unable to talk above a whisper unless she was in a recumbent position. The patient also had noted a pressure-like distress in the interscapular and nuchal regions, in the arms, in the hands and in the feet. This distress had been more marked in the feet than it had been elsewhere.

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[1] Bradbury and Eggleston, Postural Hypotension, Am. Heart J. 1:73-86, Oct., 1925.

[2] Laubry, C. and Doumer, E.: L'hypotension orthostatique. Presse méd., 10:17-20, Jan. 6, 1932.

** Present in all cases.

While she had lived in Kansas and Tennessee, she had been almost completely incapacitated because of the warm weather. She had been more comfortable when the environment temperature had been about 65° F. and when she had taken cool baths frequently. Naturally, her activities had been markedly diminished, but horseback riding and swimming had been indulged in as they had been previously, and she had been greatly refreshed by such activities. She gradually had adjusted her life so that the attacks of syncope were infrequent; she ate in a recumbent position, she would lie on the floor to play with her children, and she had learned never to make any sudden movement and to avoid exertion. There had been a gradual loss of weight, and mild progressive constipation which had required laxatives for relief.

Careful questioning revealed that the patient had perspired very little, even on exertion. There had been occasional incontinence of urine while she had been standing but there had not been any incontinence of feces.

In August, 1934, while she had been in California, her condition had been diagnosed as postural hypotension. She had been treated with various glandular substances which had not produced any relief. In January, 1935, ephedrine sulphate had been administered in doses of ¾ grain (0.05 gm.), three times a day, and glycine had been administered in doses of 5 gm., twice a day. A marked benefit in the patient's condition had been noticed in about six weeks. In August, 1935, the patient had moved to the state of Washington, where the cooler climate had seemed to give her some relief for a short time, but then there had been a gradual loss of strength and the symptoms again had become severe.

Physical examination at the clinic disclosed a middleaged woman of slender build. There was a slight pallor of skin and mucous membranes. The abdominal muscles were relaxed and the right kidney was palpable; the deep tendon reflexes were hyperactive. The values for the blood pressure, expressed in millimeters of mercury, were 126 for the systolic and 90 for the diastolic, while the patient was recumbent. When she assumed the sitting position these values decreased to 106 for the systolic and 82 for the diastolic. After she had been in the erect posture about two minutes, the value for the systolic pressure decreased to 54 and that for the diastolic pressure could not be obtained. At this time the patient complained of blurring of vision, marked weakness, and increased lacrimation; in approximately another minute she was unconscious. During unconsciousness the value for the systolic blood pressure was 40 and that for the diastolic pressure could not be obtained. The pulse rate changed from 78 beats per minute, while patient was in horizontal position, to 108 beats per minute, while she was unconscious. Complete recovery occurred about two minutes after the patient had been placed in the recumbent position.

The value for the hemoglobin was 11.7 gm. per 100 cc. of blood. There were 3,800,000 erythrocytes and 5,300 leukocytes in each cubic millimeter of blood. Examination of blood smears revealed a moderate degree of microcytosis and some hypochromasia. The carbon dioxide combining power was 57 volumes per 100 cc. of plasma. The standard glucose tolerance test revealed a normal response. While the patient was in the recumbent position, she excreted 65 cc. of urine in one hour and the uric acid clearance was 5.56 cc. per minute; while she was in the sitting position, she excreted 35 cc. of urine in an hour and the uric acid clearance was 6.11 cc. per minute. The basal metabolic rate was —2 per cent while the patient was recumbent and —14 per cent while she was standing. Examination of the spinal fluid revealed that the value for the protein was 40 mg. per 100 cc.

Heat from an electric baker induced sweating only above a fairly definite level at the umbilicus, but injection of 1/6 grain (0.01 gm.) of pilocarpine hydrochloride induced sweating below this level.

Fifty milligrams of ephedrine sulphate was administered by mouth every two hours from 6 a.m. to 6 p.m., and the patient was dismissed with instruction to continue this treatment. As a result of this therapy, the patient was able to be up and did not have any more attacks of syncope. After the ephedrine had been administered, the values for the blood pressure, expressed in millimeters of mercury, were 122 for the systolic and 82 for the diastolic, while the patient was recumbent, and 108 for the systolic and 80 for the diastolic, while she was in the sitting position, and 85 for the systolic and 68 for the diastolic while she was standing.

Case 2. A white man, aged thirty-five years, registered at the clinic on January 15, 1936, complaining of indigestion and attacks of pain in the upper part of the abdomen. For about seven years before he came to the clinic he had noticed a burning sensation in the epigastrium; this sensation had come on about one hour after meals and had lasted for about one or two hours, or until he had taken milk or bicarbonate of soda. Lack of sleep and worry had made the symptoms much worse than they had been. A diagnosis of gastric ulcer had been made in 1930; the patient had adhered to a modified Sippy diet since that time, but the symptoms had persisted. He also had suffered from occasional transient attacks of weakness, which occasionally had led to unconsciousness when he had assumed an erect posture. These attacks had been noted for approximately one and a half years before he came to the clinic. He had not noticed any disturbance in sweating or in micturition. There had been a slight loss of libido and a marked loss of potentia coeundi.

Physical examination at the clinic revealed some tenderness in the epigastrium and a varicocele on the left side. The values for the blood pressure, expressed in millimeters of mercury, were 126 for the systolic and 78 for the diastolic, while the patient was recumbent. When he assumed the sitting position, these values decreased to 114 for the systolic and 80 for the diastolic. After he had been in the erect posture for approximately two minutes, the value for the systolic pressure was 55 and that for the diastolic pressure could not be obtained. While the last reading was being taken, the patient lost consciousness. The pulse rate increased from 72 beats per minute, while the patient was recumbent, to 96 beats per minute while he was standing.

The result of the Kline test on the blood was negative. Gastric analysis revealed that the value for the total acidity was 36 and the value for the free hydrochloric acid was 26, according to the method of Töpfer. Roentgenologic examination revealed an ulcerating lesion of the lesser curvature, near the cardiac end of the stomach.

Operation was performed on January 27, 1936. The gastric lesion was considered to be benign, but because of its situation a resection could not be performed. Examination of the duodenum, suprarenal glands, kidneys, pancreas and adjacent mesenteric lymph nodes did not reveal anything abnormal. Because of the hypotension, ⅜ grain (0.025 gm.) of ephedrine sulphate was administered three times daily, beginning on the eighth postoperative day. The convalescence was uneventful.

After the patient left the hospital the administration of ephedrine sulphate was discontinued for five days. At the end of the five-day period, the values for the blood pressure, expressed in millimeters of mercury, were 115 for the systolic and 60 for the diastolic, while the patient was recumbent. When he assumed the sitting position, these values decreased to 95 for the systolic and 60 for the diastolic. After he had been standing for about two minutes the value for the systolic pressure was 90 and that for the diastolic pressure 70. The pulse rate changed from 80 beats per minute, while the patient was in the horizontal position, to 100 beats per minute while he was in the erect posture. It was decided to administer ⅜ grain (0.025 gm.) of ephedrine sulphate three times a day and the patient was asked to return to the clinic after a short interval for evaluation of this treatment.

Case 3. A white man, aged fifty-three years, registered at the clinic on March 9, 1931, complaining of dizziness, transient attacks of weakness which occasionally had caused him to fall down, and mild attacks of staggering accompanied by blurring of vision. The attacks always had come on when the patient was on his feet and never had occurred while he was sitting or while he was in the recumbent position. They had occurred most frequently when he had suddenly assumed the erect posture and had begun to walk. When he had fallen down there apparently had been no loss of consciousness and he had been able to get to his feet immediately. The attacks had been more frequent and severe after he had taken a laxative for constipation. His wife had noticed that his face would become very pale just before he would fall. The patient had noticed that his arms and legs did not perspire as did those of normal people, but perspiration over the rest of his body was normal. Libido had been normal but there had been a loss of potentia coeundi for about a year and a half. Mild constipation had developed but nocturia had not been noticed.

Physical examination at the clinic revealed a small, poorly developed man who looked young for his age. There was a mild pallor of skin and mucous membranes, which was increased when the patient assumed an erect posture. The values for the blood pressure, expressed in millimeters of mercury, were 140 for the systolic and 80 for the diastolic, while the patient was recumbent. When he assumed the sitting position, these values decreased to 80 for the systolic and 50 for the diastolic. After he had assumed the erect posture, the values decreased to 40 for the systolic pressure and 35 for the diastolic pressure. After standing two minutes the patient became pale and complained of dizziness and blurring of vision. The pulse rate increased from 64 beats per minute, while the patient was recumbent, to 68 beats per minute, while he was in the erect position.

The value for the hemoglobin was 11.4 gm. per 100 cc. of blood; the erythrocytes numbered 4,230,000 per cubic millimeter of blood and the leukocytes numbered 8,700 per cubic millimeter of blood. The result of the Kline test on the blood was negative. Roentgenologic examination of the stomach and duodenum showed evidence of a duodenal ulcer. Gastric analysis disclosed an absence of free hydrochloric acid. The basal metabolic rate was —10 per cent.

Oral administration of 50 mg. of ephedrine sulphate, three times a day, relieved the attacks. During this treatment the values for the blood pressure, expressed in millimeters of mercury, were 175 for the systolic and 100 for the diastolic, while the patient was recumbent. When he was sitting the values were 160 for the systolic pressure and 100 for the diastolic pressure. After he had stood for several minutes the values decreased to 60 for the systolic pressure and 40 for the diastolic pressure. The pulse rate was 104 beats per minute, while the patient was recumbent, and did not change when he assumed the erect posture.

Case 4. A white woman, aged thirty-eight years, registered at the clinic in November, 1933, at the insistence of her husband. For fifteen years before the patient came to the clinic she had noticed a feeling of faintness and a pressure-like pain on the top of her head when she suddenly had changed from a sitting to the erect position. When the patient had assumed an erect position and had remained standing, she had noticed that her mental faculties would lapse for a few seconds or until she began to walk. She never had perspired, even in the summer time.

Examination at the clinic revealed that the values for the blood pressure, expressed in millimeters of mercury, were 102 for the systolic and 70 for the diastolic, while the patient was recumbent. While she was sitting the values decreased to 94 for the systolic pressure and 66 for the diastolic pressure. After she had stood for approximately two minutes the values decreased to 70 for the systolic pressure and 50 for the diastolic pressure. The pulse rate was 78 beats per minute and did not change with the change of posture.

While the patient was at the clinic her husband died and she left the clinic and did not return.

Case 5. A white man, aged forty-five years, registered at the clinic in August, 1934, complaining of diplopia, diarrhea and a mild vertigo which appeared when he assumed the standing position. In 1906, he had contracted a syphilitic infection; about three months later, alopecia had occurred and the eyebrows had fallen out. At that time he had had a long course of treatment with mercury. In 1924, diplopia had developed suddenly as a result of paralysis of the right external rectus muscle. The Wassermann reaction on the blood at this time had been positive. For about two years before the patient came to the clinic he had become dizzy when he had stood up suddenly, but this dizziness had passed away rapidly, especially if he had walked. There had been no disturbance in sweating or micturition. Libido and potentia coeundi had been normal.

Physical examination at the clinic disclosed paralysis of the right external rectus muscle, Argyll Robertson pupils, loss of patellar and Achilles reflexes. Romberg's sign was positive and there was some diminution of the vibration sense in the lower extremities. The values for the blood pressure, expressed in millimeters of mercury, were 110 for the systolic and 85 for the diastolic, while the patient was recumbent. When he assumed a sitting position the values decreased to 90 for the systolic and 65 for the diastolic pressure. After the patient had assumed the erect posture the values decreased further to 60 for the systolic and 45 for the diastolic pressure. The pulse rate was 74 beats per minute when the patient was in the horizontal position and this value did not change when he stood erect.

The value for the hemoglobin was 10.1 gm. per 100 cc. of blood. The erythrocytes and leukocytes numbered 4,690,000 and 7,000 respectively per cubic millimeter of blood. Examination of blood smears showed evidence of a mild secondary anemia of the hypochromatic type. The Wassermann reaction on the blood was negative but the Kline, Kahn and Hinton tests were positive. The Wassermann reaction of the spinal fluid was 4+ and the collodial benzoin test gave the following numerical curve: 0120003331-00000.

Case 6. A white man, aged fifty-three years, registered at the clinic January 24, 1935, complaining of attacks of dizziness. In 1931 he first had noticed that climbing hills while playing golf would cause attacks of dizziness and staggering. These attacks also had been accompanied by a slight blurring of vision. His symptoms had become so severe that he finally had to give up golf. Since the onset of this trouble he had noticed a gradual increase in frequency and severity of his symptoms and that they could be produced by standing and walking after he had been sitting or recumbent. When the symptoms had been severe, the patient had had to sit to recover and if he had failed to do so, consciousness had been lost momentarily and he had fallen to the ground. The majority of attacks of unconsciousness had occurred at night, because of a nocturia which had required him to get out of bed two to six times each night. Nocturia had been present for approximately nine years before he came to the clinic. The patient also had noted a burning on urination and a moderate degree of urinary urgency. He never had perspired a great deal but shortly before he came to the clinic the perspiration had been less evident than it had been previously. The symptoms had not been greatly aggravated during the summer months. There had been complete loss of libido and potentia coeundi for a year and a half before he came to the clinic. The patient had been told that he had chronic mitral and aortic valvulitis.

Examination at the clinic revealed a man of small stature who was moderately obese. The heart was slightly enlarged and a loud systolic murmur was audible over the apex; this was accompanied by a short presystolic murmur. A high-pitched diastolic murmur was heard best at the left border of the sternum; over the aortic area, there was an aortic systolic murmur which was transmitted to the neck. The values for the blood pressures, expressed in millimeters of mercury, were 138 for the systolic and 76 for the diastolic, while the patient was recumbent. When he assumed the sitting position, the values decreased to 100 for the systolic pressure and 62 for the diastolic pressure. After he had been in the erect posture for approximately two minutes the values had decreased to 56 for the systolic pressure and 42 for the diastolic pressure. The pulse rate was 72 beats each minute, while the patient was in the horizontal position, and it increased to 80 beats each minute when he assumed the erect posture. When the blood pressure was being determined while the patient was erect he said that he felt dizzy, that his vision was blurred, and that he had a feeling of stiffness and aching in the back of his neck. At this time his face became very pale. After he had assumed the sitting position for five minutes, the dizziness and blurring of vision disappeared, but the stiffness and aching in the back of his neck remained. The right pupil was larger than the left and it did not dilate when a solution of cocaine hydrochloride was instilled in the conjunctival sac. There was a hypotonicity of the anal sphincter.

Cystoscopic examination disclosed a definite enlargement of the median lobe of the prostate gland and slight trabeculation of the bladder. Roentgenologic examination revealed that the heart was slightly enlarged. The basal metabolic rate was —2 per cent. Electrocardiographic examination disclosed a slurred QRS wave in derivations 1 and 2; a notched QRS wave in derivation 3, a slight left ventricular preponderance, and a notched P wave in derivations 1, 2, and 3. The flocculation test on the blood was negative.

On February 11 a transurethral prostatic resection was performed. The patient was then treated with ephedrine sulphate. The dosage given was 75 mg. at 7 a.m. and 50 mg. four times during the rest of the day. This treatment relieved the attacks of dizziness. While the patient was being treated with ephedrine sulphate the values for the blood pressure, expressed in millimeters of mercury, were 172 for the systolic and 95 for the diastolic, when he was recumbent; when he assumed the sitting position, these values decreased to 125 for the systolic and 85 for the diastolic. After he had assumed the erect posture the values decreased to 80 for the systolic pressure and 60 for the diastolic pressure. At the same time, the pulse rate increased from 84 beats each minute, while the patient was in the horizontal position, to 120 beats each minute, while he was in the erect position.

COMMENT

In a review of the literature on orthostatic hypotension, Barker,[3] in 1933, found reports of thirteen acceptable cases and added a case which he had observed personally. Since that time, six additional cases have been reported, which with the six cases described in this report make a total of twenty-six cases of orthostatic hypotension. Of these, two were reported from England, three from France, and twenty-one from the United States. Of the latter, thirteen were reported from The Mayo Clinic. The values for the blood pressure in the six cases of orthostatic hypotension cited in this report are summarized in table 1, while the salient features of twenty-six cases of orthostatic hypotension are summarized in table 2.

In all except two of the twenty-six cases there was a decrease of 50 mm. or more of mercury in the value for the systolic blood pressure when the patient assumed the erect posture. In the case reported by Hughes and Yusaf,[4] in which the patient was a young Hindu male, the value for the systolic blood pressure decreased only 34 mm. of mercury when the patient was in the erect posture but this decrease was accompanied by a definite sense of giddiness and weakness, which was relieved by walking or assuming the recumbent position. In case 4, reported in this paper, the value for the systolic pressure decreased only 32 mm. of mercury when the patient was erect but this decrease was accompanied by a feeling of faintness and a diminution in the acuity of the patient's mental faculties.

In fifteen of the twenty-six cases there was severe syncope with loss of consciousness when the patient stood erect, and twenty-five of the patients experienced mild syncope or weakness when they were standing. In Ashworth's[5] second case the patient did not note severe syncope with loss of consciousness, or mild syncope with weakness when standing, although the blood pressure dropped markedly.

Anhidrosis or hypohidrosis was found to be present in seventeen of the twenty-one cases in which the patients were questioned concerning this condi-

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[3] Barker, N. W.: Postural Hypotension; Report of Case and Review of the Literature. M. Clin. North America, 16:1301-1312, May, 1933.

[4] Hughes, T. A. and Yusaf, M.: Postural Hypotension with Tachycardia. Lancet. 1:1101-1102, May 11, 1935.

[5] Ashworth, O. O.: Postural Hypotension—A Report of Two cases. Virginia M. Monthly, 56:260-262, July, 1929.

TABLE 1

Blood pressure and pulse rate in cases of orthostatic hypotension, with the patient in various positions

	Blood pressure, millimeters of mercury								
	Recumbent		Sitting		Standing		Pulse, beats per minute		
Case	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic	Recumbent	Sitting	Standing
1	126	90	106	82	54	?	78	90	108
2	126	78	114	80	55	?	72	76	96
3	140	80	80	50	40	35	64	64	68
4	102	70	94	66	70	50	78	78	78
5	110	85	90	65	60	45	74	74	74
6	138	76	100	62	56	42	72	72	80

TABLE 2

Salient features of orthostatic hypotension*

	Cases studied	Cases in which feature was noted	
		Number	Per cent
Orthostatic hypotension, 50 mm. mercury or more	26	24	92
Orthostatic syncope with loss of consciousness	26	15	58
Mild orthostatic syncope or weakness	26	25	96
Variations in pulse rate with change in posture—			
15 beats per minute or less	23	16	70
More than 15 beats per minute	23	7	30
Anhidrosis or hypohidrosis	21	18	85
Increased distress in summer	14	11	79
Basal metabolic rate, —10 per cent or lower	17**	10	59
Blood urea, 40 or more mg. per 100 cc	11	6	55
Greater urinary secretion at night	20	15	75
Loss of libido and potentia coeundi	11	7	64
False appearance of youth	17	7	41
Pallor	18	9	50
Secondary anemia	20	10	50
Neurologic signs	22	5‡	23

*Material for this table was partially derived from the articles of: Allen, E. V. and Magee, H. R.: Orthostatic (postural) hypotension with syncope. Med. Clin. N. Amer. 18:585-595, Sept., 1934; Alvarez, W. C. and Roth, Grace: Orthostatic hypotension: report of a case with some unusual features. Proc. Staff Meet. Mayo Clinic. 10:483-489, July 31, 1935; Barker, N. W. and Coleman, J. H.: Postural hypotension associated with arteriosclerosis. Med. Clin. N. Amer. 15:241-243, July, 1931; Riecker, H. H. and Upjohn, E. G.: Postural hypotension: a case report. Am. Heart Jour. 6:225-229, Dec. 5, 1930, and Weis, C. R.: Postural hypotension with syncope: report of a case cured with ephedrine sulphate. Ann. Int. Med., 8:920-922, Feb., 1935.

**In six cases the basal metabolic rate was from —1 to —9 per cent; in one case the rate was recorded as "normal."

‡One patient had syphilis of the central nervous system.

tion, and ten of these patients had noticed increased distress in the summer months. The value for the basal metabolic rate varied from —1 to —21 per cent in the sixteen cases in which definite figures were given. Definite values for the blood urea were reported in only nine of the twenty-six cases; in two additional instances the value for the urea in the blood was reported as normal. In six of the nine instances in which definite figures were given, the value for the blood urea was 40 mg. or more per 100 cc. Increased urinary secretion during the night was present in more than half the cases studied. A peculiar feature occasionally mentioned in reports is the false appearance of youth. Mild secondary anemia was present in ten of the twenty cases in which reports of hematologic studies were given.

Signs suggestive of organic change in the central nervous system were discovered in only five of the twenty-six cases. In case 3 in the report by Bradbury and Eggleston, the patient had inequality of the pupils, hyperactive tendon reflexes and a bilateral Babinski sign. In the case reported by Ganshorn and Horton,[6] in 1934, the patient had slight ptosis of the upper right eyelid, inequality of the pupils, questionable enophthalmos, slight horizontal nystagmus and some difficulty in articulating. There was slight tremor of the right arm on movement; the abdominal reflexes were absent; the patellar reflex and ankle clonus were increased; the Babinski sign was questionably present, and there was diminished sensibility to the tuning fork. The gait was somewhat ataxic and fairly well marked positive results were obtained with Romberg's test. The patient in the case reported by Croll, Duthie and MacWilliam[7] had an Argyll Robertson pupil on the left side and the patellar reflexes were absent.

In case 5, in our series, there was definite evidence of syphilis of the central nervous system, namely, paralysis of the right external rectus muscle, Argyll Robertson pupils, loss of the patellar and Achilles reflexes, diminution of vibratory sense in the lower extremities, and a positive Romberg sign. In case 6, the patient had inequality of pupils and the larger pupil would not dilate further when cocaine hydrochloride was instilled in the conjunctival sac. There also was hypoactivity of the anal sphincter. These neurologic findings are evidence of involvement of both cephalic and caudal ends of the neuraxis, with greater injury at the caudal end. Woltman has suggested that the changes in the central nervous system that occasionally are seen in cases of orthostatic hypotension may be the result of irreversible chemical changes which are caused by deprivation of oxygen that is brought about by the drop in blood pressure during orthostatism.

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[6] Ganshorn, J. A. and Horton, B. T.: Postural Hypotension; Report of a Case. Proc. Staff Meet. Mayo Clin. 9:541-545, Sept. 12, 1934.

[7] Croll, W. F., Duthie, R. J. and MacWilliam, J. A.: Postural Hypotension; Report of a Case. Lancet, 1:194-198, Jan. 26, 1935.

Pathologic physiology. The chief change in cases of orthostatic hypotension is a loss of orthostatic vasoconstriction necessary to maintain normal blood pressure against the force of gravity. There may be hypohidrosis or anhidrosis and there frequently is a loss of reflex acceleration of the cardiac rate. These phenomena indicate that there is a hypofunction of those parts of the sympathetic nervous system which regulate sweating, vasoconstriction and acceleration of the rate of the heart. Administration of epinephrine or ephedrine causes some vasoconstriction in these cases and acceleration of the cardiac rate. Administration of pilocarpine produces sweating in anhidrotic areas. These drugs are said to act directly on the myoneural junction; therefore, the disturbance would seem to be central to the site of the action of these drugs.

Certain operations on the peripheral sympathetic nervous system produce effects on the blood pressure and on sweating which are similar to those frequently seen in cases of orthostatic hypotension. Anterior rhizotomy, which was described by Adson and Brown[8] as a surgical method of treating hypertension, is followed by loss of sweating which is roughly distal to the level of the nipple, by a relative fall in blood pressure when the patient stands erect, and by other effects on the blood pressure. Resection of the splanchnic nerves, the celiac ganglion, and the first and second lumbar ganglions, which was described by Adson and Brown, produces loss of sweating which is roughly distal to the knees, a relative fall in the blood pressure when the patient stands erect, and other effects on the blood pressure.

It appears, therefore, that surgical removal of peripheral sympathetic nerve fibers produces two changes which are observed in orthostatic hypotension. This observation is evidence that the situation of the fundamental disturbance in orthostatic hypotension is in the peripheral sympathetic nervous system. This belief is further supported by the inconsistency of evidence of involvement of the central nervous system, by distribution of anhidrosis in zones which frequently could not apparently result from a central lesion, and by the observation of Sanders[9] that in one patient orthostatic hypotension followed an abdominal injury. These observations, however, do not preclude the possibility of disease of the central part of the sympathetic nervous system and no definite conclusion can be drawn. Whether the deficiency in the sympathetic nervous system is organic or functional is entirely unknown.

The situation of the deficient vasoconstriction is apparently the intraabdominal area and the lower extremities, because sitting, which is orthostatism as far as the splanchnic area is concerned, does not produce the maximal reduction of blood pressure that standing does. The excretion of larger amounts of urine at night apparently is attributable to the fact that the blood pressure is higher during the night when the patient is recumbent than it is during the day when he is sitting or walking at least part of the time. Excretion of phenolsulphonephthalein is not dependent on the blood pressure.

Weakness and syncope are not dependent on the degree of diminution in blood pressure but rather on the level to which it falls and possibly to the failure of a coincident compensatory tachycardia. Usually, weakness, faintness and diminution in vision occur, when the value for the systolic blood pressure falls to 60 mm. of mercury or less, and syncope occurs when the value for the systolic blood pressure is less than 45 mm. of mercury.

Treatment. The entire problem of symptomatic relief in orthostatic hypotension is maintenance of the blood pressure above the level associated with uncomfortable symptoms when the patient stands erect, and induction of perspiration if absence of it is an important symptom. The administration of ephedrine sulphate described by Ghrist and Brown[10] is not entirely satisfactory, although it is the best therapeutic method available at present. Ergotamine tartrate is valuable, but less so than ephedrine sulphate. Administration of these drugs usually does not prevent orthostatic hypotension. When ephedrine has been administered the blood pressure may decrease as much when the patient stands erect as it did before administration of this drug. Administration of ephedrine or ergotamine tartrate increases the blood pressure while the patient is recumbent;

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[8] Adson, A. W. and Brown, G. E.: Malignant Hypertension; Report of Case Treated by Bilateral Section of Anterior Spinal Nerve Roots from the Sixth Thoracic to the Second Lumbar, Inclusive. J. A. M. A. 102:1115-1118, Apr. 7, 1934.

[9] Sanders, A. O.: Postural Hypotension: Case Report. Am. J. M. Sc. 182:217-221, Aug. 9, 1931.

[10] Ghrist, D. G. and Brown, G. E.: Postural Hypotension with Syncope: Its Successful Treatment with Ephedrine. Am. J. M. Sc. 175:336-349, March, 1928.

therefore, when the patient stands erect the blood pressure does not reach the low level that it did before administration of these drugs. Ephedrine sulphate also produces a certain degree of tachycardia in all postures. Treatment must always be an individual affair and the amount of drug administered must be based on careful and frequent clinical observation if the best results are to be secured. Good results are ordinarily minimal, if ephedrine is prescribed haphazardly without careful attention to the needs of the individual patient.

After a period of trial and error, many patients are better able to appraise the method of administration than is the physician. The most common error made in treatment with ephedrine sulphate is to administer an inadequate amount; patients who have orthostatic hypotension require comparatively large amounts of this drug and are unusually insensitive to its general effects. Ordinarily, 50 mg. of ephedrine sulphate given every two hours, beginning an hour before the patient arises and continued during the period when he is active, is adequate to produce amelioration or complete disappearance of the symptoms of orthostatic hypotension. Administration of ephedrine should be discontinued a considerable period before sleep is anticipated in order to prevent insomnia. Oral administration of pilocarpine hydrochloride in doses of 1/5 grain (0.013 gm.) three times daily, may induce sweating and thus relieve the anhidrosis.

SUMMARY

Reports of six cases of orthostatic hypotension have been added to twenty cases previously reported in the literature. The chief symptoms of orthostatic hypotension are weakness, dizziness, blurring of vision and sometimes syncope, when the patient assumes the erect posture. The pathologic physiology consists of a hypofunction of part of the sympathetic nervous system, as indicated by loss of orthostatic vasoconstriction, by hypohidrosis or anhidrosis, and by loss of reflex cardiac acceleration. Treatment is symptomatic and not entirely satisfactory; it consists of the administration of ephedrine sulphate in adequate doses to prevent weakness and syncope. In addition, pilocarpine may be used in cases in which anhidrosis or hypohidrosis is a distressing symptom.

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WOUNDS AND THEIR REPAIR*

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From a comprehensive point of view, a wound is a break in the continuity of tissue with or without gross loss of tissue. In a restricted sense the cause is usually trauma. However, open wounds or their corollary can be produced by disease such as ulcerating processes due to specific infections, tumors and the like. These latter conditions can be looked upon as wounds in that the reparative process is similar to that in ordinary traumatic loss of tissue. It is not within the domain of this paper to discuss the etiology of wounds but to consider their nature and method of repair.

Wounds have been classified as incised, contused, lacerated and punctured. This classification is a descriptive one and considers the anatomic dissociation. In any instance there is present one or all of the basic conditions necessary for the lesion to be classified as a wound. Since the response of tissue to trauma is similar in any of the different types of wounds, and since the nature of the tissue response in various structures is similar, the ordinary incised wound of the skin will be used as the basis of a description of tissue response both as to the immediate phenomena as well as the process of repair.

Coincident with the incision of the skin, there may be a severance of the underlying fat and fibrous tissue. Blood vessels are divided, hemorrhage takes place and there is a varying degree of retraction of the edges of the wound. This separation will depend upon the length and depth of the wound, also upon the type of tissue divided. When a tendon is cut, that portion attached to the muscle bundle will retract far more than the distal segment. In bony separations the force of the injury along with muscle pull will determine the amount of displacement of the fragments. Beside the break in the continuity of the structure there will be loss of tissue. In the ordinary incised wound this loss will be insignificant. However, in lacerated or evulsion wounds the loss may be very extensive. In all wounds there is a varying degree of necrosis of tissue along the margins. Wounds produced by a sharp instrument detach few cells from their base of nourishment; therefore, the amount of necrosis is minimal, yet in contused and lacerated wounds considerable tissue may be torn away or the severing of blood vessels and secondary thrombosis may lead to extensive necrosis. Wounds produced by burning, the electric current, the cautery iron or the high frequency surgical knife, leave varying degrees of destroyed cells, which will undergo necrosis and must either be absorbed or cast away in the discharge.

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Nature's method of spontaneous checking of blood flow from opened vessels is extremely interesting. In some instances, following the opening of fair sized vessels without any extraneous assistance, bleeding will cease, due to nature's own mechanism. Large vessels may be torn asunder and yet bleeding may be insignificant, while, to the contrary, an individual may lose a very large amount of blood from a severed small vessel. I recall an instance in which a man suffered the loss of both legs, they being virtually torn away from his body, due to a street car accident, and yet he lost but an ordinary amount of blood.

The usual mechanism that obtains after the severance of an artery is retraction and contraction of the severed end of the artery with the formation of an obliterating thrombus. In the event of severance of a large artery, the checking of blood flow is assisted by a decisive fall in the blood pressure which will facilitate the fixation of the thrombus in the open end of the artery. The formation of an occluding thrombus does not apply in every instance but many cases have been observed in which there has been marked retraction and contraction of the vessel with no occluding thrombus. It is believed that the trauma stimulates the vessel wall to contract in the vicinity of the severance, the contraction being so extensive as to obliterate an entire segment of the artery.

This condition has been observed in individuals who have had a severe injury without an open wound and a marked ischemia has followed. At operation a segment of the vessel was found contracted so as to completely occlude it. This has been designated as "segmental vascular spasm" or "spastic segmental vascular occlusion." It is believed by many that this segmental spasm of traumatized vessels plays a greater role in the cessation of bleeding than the formation of a clot and that the clotting time of the blood is not as significant as some believe. A similar theory is described by Stegmann, who made microscopic studies on the living animal and believes that clotting plays an insignificant role in spontaneous cessation of bleeding but that the blood is diverted away from the site of injury. This he terms "autonomous reversal of the circulation." Magnus has made the interesting observation with the capillary microscope that, when a capillary is out, it can be seen to empty its contents, contract, retract and vanish from sight. A thrombus was never seen.

WOUND REPAIR

Wound repair may be termed as primary and secondary, or as has been described in all the older textbooks of surgery as healing by first intention and healing by secondary intention.

In *primary repair* the defect is small, there is an insignificant loss of tissue and the edges of the wound are closely approximated. The edges become agglutinated, the epithelium regenerates, the few blood cells and damaged tissue cells are digested and carried away by leucocytes and the deeper defect is bridged by connective tissue, leaving practically no gross evidence of the wound.

Secondary repair. In all instances in which there is gross loss of tissue, sublethal trauma to the tissues in the immediate vicinity of the wound, injury to the blood supply, wide separation of the edges of the wound, infection or the deposits of foreign bodies, the restoration will be by secondary repair.

Immediately after the wound is produced there can be noted three zones relative to tissue injury. They are described by Arey[1] as follows: "The first zone includes the region in which tissue is destroyed directly by the wounding agent. The second zone is that next remote layer whose tissues are subject to traumatic necrosis. The extent of this territory naturally depends directly on the type of trauma inflicted; in a cleanly made cut, as by a scalpel, it is of limited extent. The third zone is seen plainest in severe tearing wounds; such, as for example, are inflicted by shell fragments in war injuries. In it the tissues are subjected to molecular violence and the constituent cells experience injury of a sort that may lead to necrobiosis. Nevertheless, many of the cells of this region are able to recover and participate in regeneration. The last-named zone merges into sound, undisturbed tissue. The first and second zones, especially, become contaminated by microorganisms introduced by the wounding agent. Of importance in the subsequent process of repair is the fact that the first zone is not surrounded by tissue of full vigor; especially does it make easier the advance of bacteria through such tissues with lowered defense."

Signs of inflammation become manifest, the degree depending upon the extent of destruction of tissue and the presence or absence of infection. There is localized redness as an evidence of hyperemia, some thickening of the edges of the wound indicating edema and cellular infiltration and an outpouring of an exudate. This inflammatory process is a protective one and is necessary for the reparative changes about to take place. Lymph and blood cover the surface of the wound and fill the interstices of the traumatized tissue, leucocytes migrate into the exudated blood and devitalized tissue and soon a framework of fibrin is laid down. Due to tissue enzymes and the action of leucocytes, blood and devitalized tissues are digested or removed by a process of phagocytosis. If the amount of devitalized tissue is great, it will be separated from the living tissue by this process of traumatic inflammation and cast off much in the same fashion as a gangrenous toe is separated by the formation of a line of demarcation.

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[1] Arey, L. B.: Wound Repair. To appear in print.

Since every wound is potentially infected, the ultimate outcome will depend upon whether the host tissues are such as to favor bacterial growth or to successfully combat it. Foreign bodies even though small, tissue which is devitalized, excessive blood clots and the like which prevent approximation of the edges of the wound will favor infection not only by mechanical means but by offering bacteria a pabulum under ideal cultural conditions. There seems to be no question but that lymph has some bactericidal properties. However, when it has been withdrawn from the circulating system for a short period of time, it loses this property and becomes an excellent culture medium. The same principle applies to blood and devitalized tissue. This observation dictates the policy of wound treatment, the removal of devitalized tissue and foreign bodies and complete hemostasis.

The constructive phase of wound healing begins before the destructive one ceases. Coincident with the digestion and separation of dead tissue, new cells make their appearance in the reparative region. These new cells are of the connective tissue type and may be classified as mesenchymal, ameboid, fixed macrophages and fibroblasts. Maximow has studied these cells and offers some interesting observations. He believes that the mesenchymal cells are embryonal and undifferentiated, resembling fibroblasts. They are usually distributed along the blood vessel walls, especially the capillaries, and have "unrealized developmental potencies" so that when they are stimulated they may form new cell types. The ameboid cells are in the main derived from the blood stream, but some may originate in the regional mesenchymal tissue. These cells are identical with the lymphocyte. The plasma cell, granular leucocyte and mast cells are modifications of ameboid cells. The fixed macrophages are reticuloendothelial cells and have characteristic staining properties in that they take an acid aniline dye. The fibroblasts are differentiated from mesenchymal tissue and are supposed to produce white connective tissue fibers in the vicinity of which they are found. Endothelial cells, evidently originating from the blood vessels or capillaries, also play a role in the reparative process, especially in the production of capillary loops.

These cells soon make their appearance in the blood clot or fibrin net work of the wound. When the devitalized tissue has been extruded, the base and edges of the wound appear pink and have a finely granular appearance, granulation tissue. Each granule consists of a capillary loop or vascular tree covered by new cells of the type described. Arey states: "The sheet of granulation tissue thus provides a cellular protective membrane to the injured body surface which has hitherto been covered merely by a fibrinous layer, produced through the coagulation of the wound secretion." It has been shown that this is a real protective layer, since alcohol will not penetrate it to cause pain and it will protect the body from the entrance of infectious material. Some believe that granulation tissue possesses bactericidal properties. Arey further states: "In short, granulation tissue presents the ideal condition for a defense against infection; this includes marked hyperemia, active exudation, local leucocytosis, and young, vigorous component cells which lie snugly together and have not yet elaborated paraplastic products."

It is by this process of granulation tissue formation that the wound defects are bridged, the process varying upon factors such as the size of the defect to be bridged, the presence of infection and extrinsic elements. The ultimate structure in the closure is scar tissue or mature connective tissue which on the body surface will be covered by epithelium. The base of the scar tissue is the connective tissue fibrils which in some manner have their origin in the fibroblast. Fibrils do not appear until the destructive phase of wound healing has passed, neither will they appear in the vicinity of infection or a foreign body even though this region may be rich in cells.

There are several theories relative to the origin of the connective tissue fibrils. Some believe that they arise within the cytoplasm of the cell, possibly their origin being due to mitochondria. Others believe that the fibrils develop from a peripheral ectoplasm or that they are the result of crystallization of an amorphous substance secreted by the cell. These fibrils which early are attached to the cell later separate and continue to maintain independent life and growth. It is by the interlacing of these connective tissue fibrils which are present in the edges of the wound and in the new formed tissue in the wound defect that the latter is intimately fixed to the healthy body tissues and eventually establishes tensile strength.

The scar tissue is early rich in cells and blood vessels and comparatively poor in fibrils. This is during the period in which the scar is pink in color and possibly elevated. As the process ages, the structure becomes poor in cellular elements and rich in fibrils; it contracts and becomes pale in color, due to the constriction of the new formed blood vessels. There is often noted a period during which there is a spreading of the scar. This may be due to an improper fixation of the new tissue to the edges of the wound. Finally, there is always a stage of shrinkage or contraction. This new formed tissue covered by epithelium does not contain the normal component structures of the skin such as sweat glands or hair follicles.

Epithelialization. Arey and his coworkers, after a thorough search of the literature and experimental work on animals, give an interesting description of the process of epithelialization of wounds. They agree with others that the epithelial defect is covered by the movement of epithelial tissue from the intact border over the connective tissue base. The movement is from all sides and is modified by the size and shape of the defect, the character of the bed, mechanical obstacles, the presence of infection and the kind of epithelium involved. The chief biologic factor responsible for the extension of epithelium is the ameboid movement of the cells. Arey believes that contraction of connective tissue may narrow the cleft to some extent but that it is an insignificant factor in comparison to the wandering tendency of the epithelial cell.

There is described a differentiation of the epithelial cells at the margin of the wound and there then ensues a movement of these cells to cover the defect. It appears that there is little or no increase in mitosis during this stage of cell migration. Due to some stimulation the modified epithelial cells at the margin of the wound begin to move in a centripetal manner, the cells often advancing in pairs, in some instances manifesting pseudopodal prolongations. In the early stages the moving cells are not attached to the underlying stratum and in the presence of a scab they are more likely to be attached to it, and if the latter is pulled away the migrating cells are detached with it.

Later there is an intimate fusion of fine fribrillae which appear to be of epithelial and connective tissue origin. It is proposed that some degree of pressure on the advancing epithelium favors attachment of the cells to the granulation tissue base. The migrating cells seem to have the ability to invade traumatized granulation tissue to form atypical projections and may erode cartilage if encountered. The final conclusion as to epithelialization seems to point to the fact that the covering is produced by an actual migration of altered epithelial cells and that, if actual increase in cell production occurs as manifested by mitosis, the latter takes place well within the margins of the edges of the wound and is found most frequently after the repair has taken place.

As one reviews the process of wound healing, it seems apparent that there must be some growth stimulus which becomes operative immediately after the wound is produced. The nature of this stimulus has been a matter of controversy, some investigators associating it with the inordinate stimulus which is present in malignant disease. Carrel[2] believes that it is something that either removes an obstacle to growth or directly promotes it. He believes that it is a protein, not contained in the plasma, but can be found in leucocytes and bone marrow. There seems to be a direct association between the leucocytes and wound repair, leucocytes apparently being necessary. Carrel cites an incidence of a soldier who had aseptic wound healing. With the development of an abscess in another part of the body the healing of the sterile wound immediately stopped. Following drainage of the abscess, the repair of the aseptic wound continued. He checked this observation experimentally on a dog with aseptic wound healing. Turpentine was injected under the skin of the abdomen. When the abscess formed, wound repair stopped but after the abscess was drained a normal rate of wound healing ensued.

TREATMENT OF WOUNDS

There are five general principles involved in the treatment of ordinary fresh wounds: (1) prompt care, (2) complete removal of all devitalized and contaminated tissue along with foreign bodies, (3) complete hemostasis, (4) accurate approximation of the edges of the wound with obliteration of "dead spaces," and (5) immobilization of the parts.

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[2] Carrel, A.: Process of Wound Healing. Proc. Inst. of Med., Chicago, 8:62-66, April, 1930.

Prompt care. Attention has been called to the fact that bacterial deposits are made in that zone of the wound directly in contact with the instrument producing the wound or in the immediate adjacent one. These zones which contain devitalized tissue, serum and blood offer little resistance to bacterial growth; in fact, this type of tissue supplies bacteria with an excellent pabulum for growth, since it contains nutriment, moisture and heat, the essentials for bacterial growth. If bacteria are allowed to grow in this area, they soon become able to invade the deeper structure, due to some extent to their devitalizing effect upon the third zone which contains damaged yet viable cells. A properly treated wound, aside from any other element, by virtue of its closure tends to exclude bacteria from the exterior or from adjacent parts.

Complete removal of all devitalized and contaminated tissue along with foreign bodies. This is perhaps the most essential factor in the treatment of the ordinary fresh wound. It may be termed the "toilet of the wound." Every wound, regardless of its nature or extent, in its management should be considered clean so far as the physician is concerned. To prevent secondary contamination it should be handled as one would a clean surgical wound. The hands should be scrubbed and rubber gloves used. In the hairy areas, the wound should be packed with sterile gauze and the hair surrounding the wound shaven. The skin should then be cleansed with soap and sterile water; any grease present should be removed with benzene or other fat solvent. When the surrounding parts have been cleansed, they should be isolated with sterile linen, the gloves changed and the wound investigated. This stage of the procedure may require an anesthetic.

The margins of the skin should be excised, care being taken to remove all traumatized and contaminated tissue. The edges are then held apart by retractors and the deeper portions examined. This procedure should be carried to the depth of the wound, removing all suspicious tissue such as traumatized and stained fat and fascia or muscle fibers. Some discretion must be displayed when essential structures are encountered such as nerves, blood vessels and the like. It may become necessary to preserve these even though injured. Punctured or severely lacerated wounds, such as are produced in automobile or industrial accidents, should be carefully searched for foreign bodies and every cranny explored. Leaving behind a bit of clothing, metal or wood may completely defeat the procedure. It should be stated that no form of antiseptic solution should be used in the wound. It is believed that any chemical which is of sufficient potency to destroy bacteria may damage living tissue and thus prevent healing of the wound.

Complete hemostasis. In case a large vessel is open and bleeding is active, it may become necessary to institute hemostasis before the wound is cleansed. In such a case the bleeding point should be picked up with a sterile forceps which is allowed to remain in position until the wound can be prepared for toilet. If the bleeding is excessive and the bleeding point can not be readily seen, a tourniquet should be applied, but it should be stressed that it is not desirable to deprive an injured part of its blood supply too long for fear of further damage to tissue which is already suffering from a detachment of its normal supply of blood. A traumatized blood vessel which is thus deprived of its blood flow may become blocked by a thrombus.

After complete toilet of the wound, all bleeding points are ligated with fine silk or cat gut. When there is oozing from multiple areas, a pack in hot saline solution will often facilitate hemostasis. When all bleeding has been checked the wound is ready for closure.

Accurate approximation of the edges of the wound. The details of this procedure will depend upon the size, extent and location of the wound. Essential structure should be united in kind, muscle to muscle, divided tendons and nerves sutured, deep layers of fat brought together in order to prevent a "dead space" and the skin accurately approximated. The following case may illustrate:

A young woman was brought to the hospital, after being struck by an automobile. She was seen by me in the emergency room within an hour after the injury. She had multiple skin abrasions and a deep wound just internal to the right patella. The resident noted that a clear fluid was escaping from the wound. A sterile dressing was applied to the wound and the patient was taken to the operating room. She was anesthetized and the parts scrubbed as already outlined. Upon inspection it was noted that dirt and grease was ground into the skin edges and the floor of the wound.

The edges of the skin were excised and held apart. All soiled and contaminated tissue in the floor of the wound was excised down to the capsule of the joint. It was found that there was a tear in the capsule of the joint, approximately two inches long. The edges of the torn capsule were excised and because of pocketing the capsule was further incised in order to procure better vision of the deeper portions of the wound. A tear was found in the synovial membrane. The edges of this were also trimmed. The joint cavity was irrigated with warm physiologic salt solution, and the synovial sac closed with cat gut sutures. The wound was again examined to be sure that all soiled and traumatized tissue had been removed. The capsule of the joint was then sutured. The skin was closed with silk sutures without drainage.

This patient made an uneventful recovery without any evidence of joint irritation or skin infection and four weeks after the injury had a full range of motion of the joint. It might be added that this patient also had fractures of the transverse processes of the upper four lumbar vertebrae on the left side, the latter causing all the discomfort which she complained of during the subsequent course.

With extensive loss of tissues it often becomes a problem as to how the defect can be closed. Essential structures should be repaired and as much of the skin brought together as possible. It is surprising at times the results which can be obtained in such cases. The exposed surfaces become covered by fibrin and healthy granulations begin to fill in the defect. It has already been stated that granulation tissue offers an excellent buffer against extraneous infection. Rather extensive defects will in the end fill in and epithelialization eventually occurs. It is, however, in this type of case that contractures may occur later; therefore, the parts should be put in a position of maximum function and possibly skin grafting resorted to in order to hasten repair. In the event of loss of bony structures good results may at times be procured by primary closure, if a complete toilet can be made and enough bone remains in the defect so that bone regeneration can take place.

Immobilization. Rest is essential to a prompt recovery to injured tissue. If one reviews the processes which take place in wound repair, it becomes obvious that the parts about a wound should be retained in position so that the agglutinization of the edges is not disturbed and the intertwining of connective tissue fibrils of the granulation tissue and the margins of the wound is not interfered with. Trauma to granulation tissue predisposes it to secondary infection and prevents it from exerting a normal protective influence to the underlying tissues. Rest is conducive to hemostasis; therefore, hematomata are less likely to form between the edges of the wound. In extensive wounds, especially when muscles or bony structures are involved, immobilization of the parts gives much comfort to the patient. It is needless to say that in the event of a complete separation of a bone or when tendons are severed, accurate fixation is imperative. It has been noted that, during the process of epithelialization of a wound, the migrating epithelial cells are not attached to the underlying surface early in the process. Therefore, movement of the parts tends to dislodge such migrating cells and delays healing. Firm pressure of the dressing is conducive to wound healing. This has been so strikingly demonstrated with the sea sponge compression over free full-thickness skin grafts. I have repeatedly used sea sponge dressing when rather large skin flaps have been evulsed and sutured in position. The procedure is in every detail as has already been described, in that a thorough toilet of the wound is necessary and all traumatized and contaminated tissue excised both from the skin flap and the floor of the wound. It is important that no antiseptics be used.

REPAIR OF SPECIAL STRUCTURES

Tendon repair. Second only to the technic of repair is the prompt recognition of the severance of a tendon. In many instances the skin wound is small and appears to be superficial and possibly not in the position to cause suspicion of tendon injury. This applies especially in glass and ordinary stab wounds. In every instance in which there is a wound in the vicinity of tendons a careful investigation should be made and the integrity of the tendons proven, even though the skin wound may appear to be trivial. I have seen the severance of several tendons as well as the median nerve at the wrist in a case in which the skin wound was less than one centimeter in length and appeared to be only a superficial cut.

In order to thoroughly understand the technic of tendon suture it is necessary to review the processes involved in tendon repair. Mason and Shearon[3] in elaborately conducted experiments bring to light some interesting and valuable data. They have shown that even with accurate approximation of the tendon ends within a few days there will be a separation of two or more centimeters. Early there is a marked reaction of an inflammatory nature about the ends of the tendon and the sheath. The sheath prolapses into the defect between the ends of the tendon and becomes thickened, and the triangular cavity at the ends of the tendon become filled with granulation tissue. By the end of a week continuity has been established by means of the sheath and peritendonous tissues and the exudate show beginning organization. At this stage the organized exudate, tendon stumps and sheath with peritendonous structures are closely adherent so that they move en masse. Tendon cells make their appearance in the exudate. These cells produce a new tendon structure which is different from scar tissue and in the end the defect is bridged by new tendon which cannot be distinguished from the normal.

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[3] Mason, M. L. and Shearon, C. G.: Process of Tendon Repair; Experimental Study of Tendon Suture and Tendon Graft. Arch. Surg., 25:615-692, Oct., 1932.

They have clearly shown that two structures are involved in tendon repair, the sheath and peritendonous tissue and the tendon itself. The former lays down connective tissue which is of use during the early stages of the repair, in that it splints the ends so that the young tendon cells may eventually form new tendon. It is, therefore, apparent that the sheath is an important element in tendon repair, also that there should be no foreign bodies introduced between the ends of the tendon for any factor which prevents formation of the new tendon will lead to fibrous union which has all the disadvantages of fibrous tissue. Accurate approximation is essential in spite of the fact that there was always found a separation after a few days. Mason and Shearon have shown that three weeks after correct tendon suture there is sufficient union to withstand many pounds of pull. Most of the swelling has subsided and the tissues have regained their normal appearance. About the suture line there has formed a thin paratenon-like sheet beneath which the tendon can easily glide.

Technic of tendon repair. The repair should be immediate or within the limits in which the ordinary wound can be cleansed and primary suture instituted. After thorough cleansing of the wound the ends of the tendon are located. It may become necessary to increase the length of the wound in order to identify the cut ends. The dissection should be neat and special care taken not to disturb the sheath of the tendon. When the ends of the tendon have been located, they should be gently handled so as not to further traumatize the stumps. In case the ends are ragged they may be cut across with a sharp knife, though no intact tendon part should be removed.

Mason and Shearon recommend the use of D corticelli silk for the approximating suture. This suture is placed as follows: with a fine, straight needle the suture is entered about one centimeter from the end of the stump. A bit of the tendon is included in an in-and-out suture and it is tied, leaving an end. The needle is then pushed through the tendon and at the point of exit another bit of tendon is included in an in-and-out stitch and tied. The same procedure is used with the other stump. The ends of the two sutures are then tied, approximating the ends of the tendon. Following this the sheath is sutured with fine atraumatic nerve silk swaged in the needle, using many interrupted sutures so that the ends of the tendon are neatly joined (fig. 1). With this suture there will be no foreign body between the tendon ends. The silk suture about the tendon becomes encapsulated and there is practically no local reaction. The parts should be immobilized for about two weeks, in some instances motion may be instituted earlier.

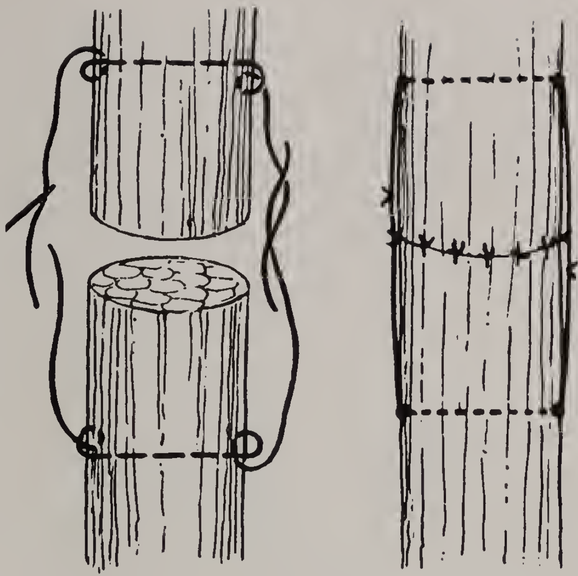
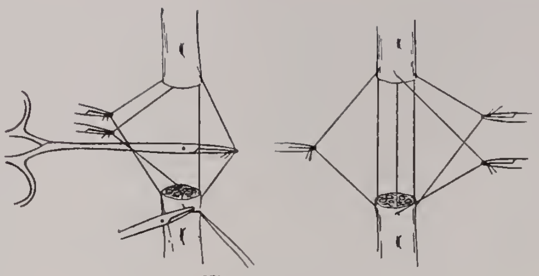


Fig. 1. Technic of tendon repair (from Mason and Shearon).

Nerve repair. The qualifications for nerve suture are essentially the same as for tendon repair. It should be stressed that handling nerve tissue tends to defeat restoration of function. When the ends have been identified, great care should be used in handling them. Davis recommends the following procedure: a silk suture is placed through the epineurium exactly in the midline of both segments. This prevents torsion of the nerve from its axis, since "it is important to obtain an approximation of the nerve ends in as nearly the normal funicular apposition as possible." This suture allows moving of the nerve without trauma. The ends may be freshened if traumatized or, in the event of an ancient division, the neuromas are cut away with a sharp razor blade. The nerve is then ready for suture.

The sutures placed through the perineurium are aligned and four sutures are placed through the epineurium at the four quadrants of each segment (fig. 2). When simultaneous traction is made upon



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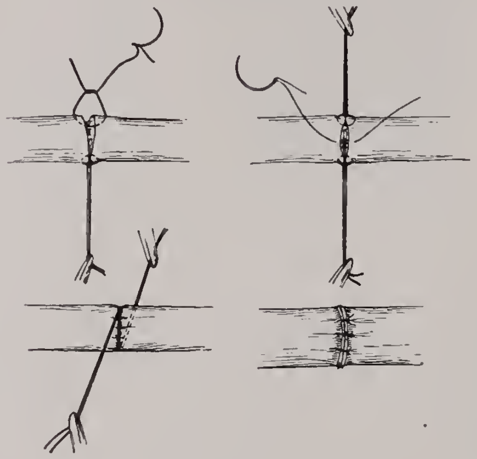

FiG 3

Fig. 2. Placing of the stay suture in nerve repair (from Pollock and Davis).

Fig. 3. Suture of the nerve sheath in nerve repairs (from Pollock and Davis).

these four sutures the nerve ends are brought into approximation. These sutures should be tied so that there will be no overlapping of the ends. There should be no tension upon the nerve. Accessory sutures should be placed in the nerve sheath so that nerve fibers do not project through the suture line (fig. 3). Davis recommends the use of fine silk suture material which has been passed through vaseline. Black corticelli silk is separated into its component strands and each of these serves as a suture.

It has been stressed that the nerve after suturing should be placed in a bed in which the minimal amount of scar tissue will form. If it can be placed upon normal muscle it is desirable. When this is impossible a flap of fat may be mobilized and swung about the suture line. The wound is closed without drainage, care being taken that hemostasis is complete.

The time required for regeneration varies. It depends upon the extent and nature of the injury and upon individual responses. Davis states that "the success of nerve suture is in direct relation to the interval between the receipt of the wound and the operation." I am convinced that the technic of the repair is an important factor to be considered in evaluating results. Improper technic leads to the interposition of scar tissue between the segments of the nerve and prevents regeneration. Davis calls attention to the fact that at times, following end-to-end suture, evidence of regeneration may be present and then suddenly cease. This retardation may be only temporary and regenerative processes may again appear. He believes that at least nine months should elapse after a well performed end-to-end suture before a second operation should be considered.

INFECTED WOUNDS

The subject of infected wounds is so large that only a few of the important phases can be discussed. I believe that a survey of the etiology of infected wounds may be of interest and bring out some important points.

As has been stated in a discussion of the healing of wounds, certain conditions of wounds predispose them to infection. It may be said that a wound in which devitalized tissue is allowed to remain is more likely to become infected than one produced by a sharp cutting instrument and consequently containing a minimal of dead tissue. An exposed wound in which blood clots are present may be similarly classed. In either instance there is present in the wound the ground work for bacterial growth, isolated from the antagonistic action of the body. Moreover, such organisms as gas-producing bacteria thrive in devitalized tissue and it is known that wounds which are contused and lacerated, when contaminated with street dirt, are very likely to become involved by a gas gangrene.

Be the wound a surgical one or one produced by accidental trauma, it may be contaminated and an infection ensue; therefore, they may be considered as one and the same.

Prognosis in Gallbladder Surgery. According to William D. Wilson, Rochester, Minn.; Edwin P. Lehman and William H. Goodwin, University, Va. (*Journal A. M. A.*, June 27, 1936), an analyses of a series of 610 consecutive cases of cholelithiasis and cholecystitis covering a period of thirteen years gives a hospital mortality rate of 3.6 per cent. The follow up of survivors includes 447 cases (76 per cent). In addition to the usual percentage tabulation, the data are statistically controlled by the method of "chi-square distribution." This method demonstrates in the present series no statistical significance in comparisons between the symptomatic results and such factors as age, sex, race, duration of symptoms, severity of symptoms, presence or absence of jaundice, presence or absence of a history of colic, the degree of functional disturbance indicated by the cholecystogram, the pathologic stage of the disease (acute or chronic) and the type of operation.

NEW RESPIRATORY APPARATUS

CARL A. EWALD, M.D.
SEATTLE, WASH.

Twenty-two years ago I devised an apparatus for use in artificial respiration. I described it in an article published in *Boston Medical and Surgical Journal*.[1] Except for two requests for reprints nothing came of it.

In 1929 Drinker[2] invented and patented his "respirator" embodying the same principle, evidently unaware of my work. The idea of patenting the device was dismissed on ethical grounds. This, I now think, was a mistake. Had it been done, the apparatus would have been available for use fifteen years earlier.

A machine so costly and difficult to construct is of little value to the physician unless it can be offered ready for use. This requires the medium of a suitable builder who could hardly be found, if no protection such as a patent affords were given after the cost of preparation for manufacturing and of introducing the apparatus had been incurred.

In my published article I first described a small cabinet which, like the Drinker respirator, was only big enough to admit the patient's body. Its shortcomings were apparent from the start. There was no suitable way of attending to the needs of the patient, such as bathing, massage, use of bed pan, change of linen, etc. This led to the idea of a cabinet large enough not alone for the patient's body but one that would permit the nurse or physician or several persons to enter.

There were many difficulties to overcome in building so large an apparatus. The principle of its operation depended on an alternate lowering of the pressure within the cabinet and its return to normal some sixteen or eighteen times a minute. If the air within the lungs is maintained at atmospheric pressure while the pressure on the outside of the body is reduced, say one-half pound per square inch, a forced inspiration results. When this pressure returns to normal, part of the air in the lungs is exhaled or driven out, chiefly through the elasticity of the lungs and of the chest walls. Since the patient's head is outside the cabinet while the body is inside, the air in the lungs will always be at atmospheric pressure. If the pressure in the cabinet is lowered and then allowed to return to atmospheric pressure and this change takes place, say sixteen times a minute, we get artificial respiration, wholly independent of any effort on the part of the patient.

To bring about a pressure change in so large a cabinet presented a difficult problem, namely, how to withdraw, say one-thirtieth of the volume of air in the cabinet, together with all the air that would unavoidably leak in about the door, neck opening and elsewhere whenever the pressure inside was reduced below atmospheric. This leakage, even with good gaskets, amounts in the cabinet here pictured to more than two cubic feet every time the pressure within is reduced six ounces per square inch. The same type of pump or bellows as would be used with the small cabinet could also be used with the large one, but the cost and weight of such a machine would be prohibitive. Fortunately a simple solution occurred to me.

If we have a cylinder nearly full of water through the center of which a pipe passes up above the water level, and if this pipe is then extended at the lower end to connect with the cabinet and a second cylinder, closed at the top, somewhat smaller in diameter than the first, is lowered with its open end into the water, air will be forced out of the space thus formed above the water through the pipe into the cabinet. Conversely, if the cylinder is raised, air will be withdrawn from the cabinet and a negative pressure set up. Since any considerable positive pressure within the cabinet is not needed or desired, this is prevented by an escape valve. By adjusting the relative size of the cylinder and the cabinet and then raising and lowering the cylinder, say sixteen times a minute, with the patient's head outside and the opening about the neck closed by a suitable rubber gasket, artificial respiration is attained.

This water bellows, as I have called it, is the basis on which the practicability of using so large a cabinet rests. We need not here go into the details of its construction or of the means of lifting and lowering the cylinder further than to say the power is supplied by a one and one-half horse power Westinghouse motor. The power consumption in twenty-four hours continuous operation of a cabinet of the size here shown, namely, 4 feet wide, 7 feet long and 6 feet high, is a little less than 15 kilowatt hours. Such an apparatus, an improvement in many details on my earlier one, is shown in the illustrations. Figure 1 shows the cabinet with the head panel and bed partly withdrawn. Figure 2 shows it with the patient's head outside. Figure 3

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[1] Ewald, C. A.: Apparatus for Use in Operations on the Open Thorax. Boston M. & S. J. 170:569-571, April 9, 1914.

[2] Drinker, P. and McKhann, C. F.: Use of New Apparatus for Prolonged Administration of Artificial Respiration. J. A. M. A., 92:1658-1660, May 18, 1929.

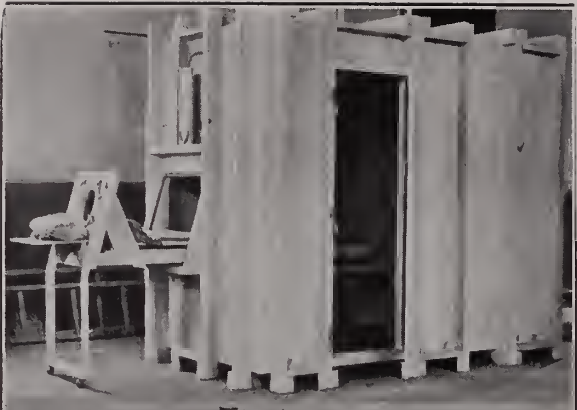

Fig. 1

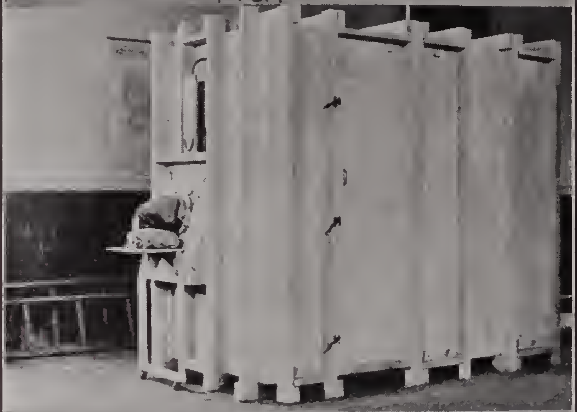

Fig. 2

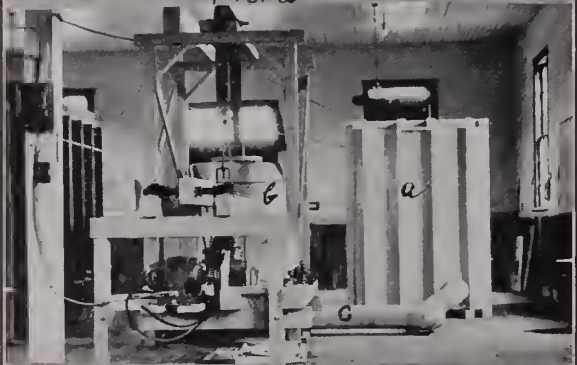

Fig. 3

Fig. 1 shows respiratory cabinet with head panel and bed partly withdrawn, and door open.
Fig. 2 shows body of patient in cabinet. About the neck is noted the rubber gasket fitting tightly but so constructed that the patient can turn on either side.
Fig. 3 shows rear of cabinet (a), the water bellows (b) and pipe (c) extending to cabinet.

shows the rear of the cabinet with the pipe connecting water bellows and cabinet.

The chief use for such an apparatus would appear in carbon monoxide poisoning and in those cases of infantile paralysis, where the respiratory muscles are involved, but it might be of use in many other ways. In pneumonia, for example, where the heart is taxed to the utmost, is it not likely that, if the physical work required to expand the chest were transferred to an electric motor from the more than fifty muscles required in doing this work, this might be the deciding "straw" in a critical situation? So, too, in a heart case where the organ seems about ready to quit altogether, a little lifting of the load for a critical day or two might be of vital importance. I have no exact data as to the energy needed to keep up ordinary breathing but since the chest must be expanded sixteen or more times per minute, day and night, or over 20,000 times a day and as this has to be done against a resistance which the elasticity of the lungs and of the chest walls offers, a resistance which in labored breathing may reach one-quarter pound per square inch, it is obvious that the energy so used must be a considerable item in the total tax on the heart.

I felt when I published the description of the first apparatus that it would be of value in operations within the open chest. I still think it would, since respiration could readily be maintained while the lungs were freely exposed. I had in mind a chamber 10 feet by 12 feet by 7 feet high with the top and sides enclosed in heavy plate glass supported on a steel frame strong enough to withstand the great pressure. Such a respiration chamber for use in the clinic of a medical school with seats suitably arranged would enable students or physicians to watch the details of a delicate operation without danger of contaminating the air about the patient. Such an apparatus would be expensive but it could be built.

As an indication of the pressure the walls would have to withstand, it may be pointed out that the cabinet here shown has to bear a pressure on each side of more than a ton whenever the negative pressure within reaches six ounces per square inch. The result is a pulsation inward of all four sides and of the floor and ceiling. This, however, does no harm and could be altogether prevented by using heavier studding and joists.

The physician entering the cabinet notices no effect on his own breathing but feels a peculiar sensation in his ears, due to the delayed transmission of the pressure changes through the small eustachian tube to the inner side of the tympanum. It amounts to a kind of massage of the ear drum.

I would be glad to show the apparatus, by appointment, to any physician interested in its working and suggest that he bring a colleague or someone who could act as a patient. He could then be shown the technic of adjusting the gasket about the patient's neck and other details, and see the machine in action. He could from this and its behavior form a clearer opinion as to its practicability. The apparatus is at 309 Orcas Street, Seattle, where it was recently completed. A communication directed to this address will receive the attention of the writer.

Coronary Artery Disease in Women. Hyman Levy and Ernest P. Boas, New York (*Journal A.M.A.*, July 11, 1936), state that in women, especially those under the age of 50, coronary artery disease is unusual in the absence of diabetes or hypertension. Yet precordial pain simulating angina pectoris is a common symptom. Although experienced clinicians have been aware of this fact for years, it is overlooked again and again in daily practice and many mistaken diagnoses result. During the last seven years in an office practice representing largely patients referred for cardiovascular diagnosis, the authors have seen 1,672 women, 169 of whom had coronary artery disease. In the same period they saw 2,135 men, 1,059 of whom had coronary artery disease.The frequency is 4.9 times as great in men as in women. Of the 169 cases in women, 125 were associated with hypertension alone, twenty-five with both diabetes and hypertension, and six with diabetes alone. In only thirteen cases was there neither hypertension nor diabetes, and of these only five were in women under the age of 50. The clinical picture of true coronary artery disease as it occurs in women does not differ from the generally recognized form. The relative unusualness of coronary artery disease and the frequency of benign precordial pain in women should lead to great caution in the diagnosis of coronary artery disease in women in the absence of hypertension or diabetes. This applies as well to many women in the fifth decade of life with unstable blood pressures and transient rises to 160 or 170 millimeters of mercury. The fluctuating blood pressure level may be only one expression of the many vasomotor instabilities associated with the menopause and does not have the same significance as a maintained arterial hypertension. Even in the presence of hypertension in women, true angina pectoris is much less frequent than in benign precordial pain. However, coronary artery disease does occur at times in women with normal blood pressures who are free from diabetes, particularly in women over the age of 60 who have generalized arteriosclerosis. Isolated cases in young women in the absence of both hypertension and diabetes have been reported. Averbuck has pointed out that "when the clinical picture suggesting coronary artery thrombosis occurs in a female patient who has neither arterial hypertension nor diabetes, a pulmonary embolus should be suspected." Hypertension is not the cause of coronary disease but simply accelerates its development. The designation "hypertensive cardiovascular disease," so commonly employed to describe these disease states, is a poor term. It assumes a necessary and fundamental connection between the two disorders.

Perineal Testicle. In his two operative cases of perineal testicle Meredith F. Campbell, New York (*Journal A.M.A.*, June 27, 1936), anchored the gubernaculum with a transfixation ligature of unabsorbable suture, which was then passed out through the bottom of the scrotum. This suture was tied to a small rubber band, to which in turn was tied a suture passed through the skin of the lower inner thigh. These sutures were tied to the interposed rubber band under sufficient tension to cause mild traction to be exerted on the testicle, a maneuver adopted from Cabot's technic in the correction of undescended testicle. In from three to six days the traction suture pulls out, but during this time the testis has become well adherent to the bottom of the scrotum and the cord has been kept at full length. Should hernia coexist, hernitomy also is performed. Unless the ectopic organ is placed in a newly made pocket in the scrotum, it is abnormally subjected to trauma; atrophy and isolateral sterility are almost certain. Endocrine therapy is ineffectual in correcting this variety of maldescent. There should be neither surgical morbidity nor surgical mortality.

EPIDEMIC DYSENTERY
IN THE YAKIMA VALLEY *

Henry H. Skinner, M.D.
YAKIMA, WASH.

Every year during the summer months dysenteries of different peculiarities are to be observed. Some of these instances present outstanding characteristics. Three varieties, occurring in 1928, 1933 and 1935, have been selected for description, the first two of which will be reviewed briefly.

During the summer of 1928 sixty-four cases of dysentery in infants and young children were particularly noted. Nine of these children died. Six autopsies were obtained. From these autopsies, also from the stools of other children, cultures were taken. In every single instance none of the so-called dysentery group were isolated. Instead a bacillus was found, not only in the stools, but in the liver, spleen and mesenteric glands of all subjects examined. After some three months of cultures and reculturing, also checking and rechecking of this organism, it proved to be the colon bacillus.

In 1929 Dr. Michalowiscz, professor of pediatrics in the University of Warsaw, Poland, told me that he had isolated the same organism from his cases of dysentery. His duplication of my experience is at least a point of interest, and authorities state that under certain conditions the colon bacillus actually becomes pathogenic.

During the year 1933 there was a large number of cases of diarrhea. I have no records of deaths or autopsies, but here, again, considerable work was done in bacteriology. This year a diplobacillus, described by Bargen, was universally found and finally accepted as the pathologic organism. One case stands out most interestingly.

It was that of a small boy, four years of age, seen September 21, in consultation with Dr. Unsell of Wapato. He then had been sick for a number of days, having forty bowel movements a day. He was unconscious. During the next week or two he was kept alive by the use of the nasal tube, through which he received large amounts of fluid, also nourishment, and what medicine as was given.

This case was so protracted and the nasal tube was necessarily used for so long a time that his larynx became edematous. Intubation became imperative, and a little later, as the tube was not retained, Dr. T. J. Schott performed tracheotomy. During this severe course of the disease a bacteriophage was given, but with no particularly noticeable result. He evidently had an excellent natural constitution, for with all the above mentioned difficulty, in addition to the dysentery and its accompanying toxemia, he lived, gained, and left Dr. Unsell's hospital in Wapato on December 10.

In the year 1935, we had a very marked and widespread epidemic of dysentery in babies and young children. They came in from forty and fifty miles distant.

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* Read before a meeting of Northwest Pediatric Society, Portland, Ore., Jan. 25, 1936.

INCIDENCE

Introduction to its onset began in June, possibly before, extending through July, August and September. These months were characterized by the mildness of the infection, although quite a number of children infected were seen. Then rather suddenly a marked change occurred. During the first fourteen days of October, sixty-five different cases came into the office, some of them very dangerously ill. After that a number of scattering instances were encountered until early in December. The ages included children of two weeks to four or five years of age. Sometimes the parents of these stated that they too had been suffering severely with "bloody flux" before their child was affected. The duration of the disease was from a few hours to several weeks, one child being sick only twenty-four hours, expiring of toxemia, as did another ill only thirty-six to forty-eight hours. Some illnesses extended over a period of six to eight weeks, the average length being estimated at two to three weeks.

SYMPTOMS

The outstanding symptom was the frequent stools. They numbered oftentimes forty or even more a day. In two instances the nurses informed me that the running off of the bowel was almost constant. The number in the average case was nine or ten a day, diminishing gradually as the condition improved.

The next most frequent constant symptom was abdominal pain, also, in addition, tenesmus. There were children whose only complaint was abdominal pain or distress, no diarrhea at all, although usually a slight looseness of the bowels was noted sooner or later.

Loss of weight was what one expected to see because of the fact of marked and rapid depletion of body fluids. One child was given so much water and one-half normal saline per nasal tube that he gained two or three pounds in as many days, due to salt retention, but lost it almost as quickly as he had gained it, when the saline was substituted with karo water.

Toxic symptoms were quite marked in some instances, especially as enumerated above in the two who died within a short period. Frequently the toxemia seemed to be progressive, that is, it was not observed at first, but developed progressively as the case proceeded.

The temperature was always elevated, but not very much, usually running from 100.5° to 102°. Some had frequent flare-ups, for short periods going to 105° and even 106°. Although such pyrexia was disconcerting and prostrated the child, sometimes there was an intimation at least that it was of benefit.

The abdomen was usually scaphoid, but distention was occasionally observed, and in three instances a very disturbing factor. One child died of paralytic illeus, proved by autopsy. The others recovered.

Vomiting was quite distressing always, and at times serious. Death was due to loss of fluids and toxemia.

BACTERIOLOGY

The sources: Our cultures were from the bowel movements and the lone autopsy case. In the latter they were taken from the bowel and mesenteric glands. Miss Katharine Klise, our technician, spent some two months isolating and attempting to classify the organism. In every stool examined, whether merely a bowel movement or wholly pus or blood. a diplococcus was found. Another remarkable discovery was that none of the dysentery group were present at any time. Davison says that, unless cultures are taken from stools of the patient within a few hours after being passed, the dysentery group will not be found. Practically every one of our series was cultured within a few moments of the passing of the stools. Consequently, we feel, had there been any member of the dysentery group present, it would have been captured.

In reculturing this diplococcus, Miss Klise expected that on some variety of media it would appear in chains sooner or later, but it did not so develop. The reason for this expectation was that the mesenteric glands did not show the diplococcus but a streptococcus hemolyticus, yet the bowel to that mesentery contained thin pus which produced a pure culture of the above diplococcus. Our conclusions are that this diplococcus, a name for which we have not been able to find, was the causative agent in our epidemic. Since the epidemic, Miss Klise has also cultured stools from normal children. and from two of those children who had been previously cultured during their illnesses. In none of them was the above mentioned diplococcus to be found.

TREATMENT

Unfortunately all our treatment is to meet symptoms in order of their importance and not specifically.

First, the body fluids which are being very rapidly depleted must be replaced. There are six methods of entrance to the body: (1) mouth, (2) subcutaneous, (3) anterior fontanel in the infant, (4) intravenous, intermittent or continuous, (5) intraperitoneal, (6) nasal.

Unfortunately a child who is dehydrated and parched with thirst will take by mouth only a few sips of fluid at a time, wherein he needs one, two or more quarts a day. He may take twelve to sixteen ounces subcutaneously, a procedure which is excellent in a crisis, but the number of times over a period of seven to ten days is limited. The fontanel entrance is not being used so much as formerly and possibly for the same reason. The intravenous route is excellent, but I have not used the continuous idea. The intraperitoneal method I have not used for a number of years. Since talking with men in institutions where that method might be a necessity a good deal, they state they are giving it up, their reason being that, where normal saline or Ringer's solution has to be used, it may not be absorbed for several days, autopsies showing even four days after intraperitoneal administration that it is possible to get back the same fluid, ounce by ounce.

When any therapeutic measure is used, it must be reliable to the extent of its immediate efficiency. This leaves what I have found to be the most satisfactory method for treatment over a long period, and that is the nasal tube, through which one can give fluids every one or two hours during the twenty-four without disturbing the patient even during sleep. Also, if vomiting is intractable, I find that large doses of barbital or phenobarbital, sufficient to make the baby very drowsy, will quiet the stomach and allow fluids to be taken.

Food is very necessary for a child to keep up its strength and build resistance. Unfortunately infants depend upon milk for a very great part, and this is one of the best culture media, although we sometimes forget that the offending organism is undoubtedly very rapidly and safely hidden in the cellular structure of the bowel lymphatics and glands. Consequently, bowel content would not have very much influence on the progress of the disease, but it is better that one look for some other food than milk.

The variety of food depends on a few factors. If the stool be very foul, it means that a protein-splitting organism is present and the food given should be largely or completely carbohydrate. If it is not foul but odorless, then the germ is a carbohydrate-digesting organism, and the food given through the tube should have a high protein content and meet that occasion without using milk for the first twenty-four hours. After that, as soon as possible, lactic acid milk, either with or without some protein adjuvent such as casec or larosan, is acceptable, also the use of cereals and broths.

I found it particularly valuable occasionally to completely change the food for a day or two. For instance, give only oatmeal, and this holds for any age; then rice, and then back to one of the wheats or cereals, suggesting at least that the organism of the bowel became accustomed to a certain habitat, and was disturbed when a complete change was made. I would include in the above menu scraped raw apple or apple pulp, but have not found it specific in any of these cases. Sometimes a case was much bettered by the dropping of the apple pulp after its use for three to four days, and for the reason given above.

Medical. One desires above all things to have some specific, and sera have been tried. In two instances, the father in the family had been sick with dysentery, bloody stools, tenesmus, abdominal pain, and had almost recovered. They agreed to furnish blood for their respective children. In each instance blood was taken and serum was given the child five or ten cc. two or three times a day. Of course, this was entirely empirical, but absolutely no influence on the progress of the child was to be observed. Some author has intimated that this condition is a good deal like a "cold," that the immunity is very fleeting and the antibodies are small in amount and quickly lost from the body.

Paregoric is easy to give through the tube, and is fairly satisfactory in controlling pain, but I have never seen it diminish the number of stools even when given in heroic doses. As stated above, phenobarbital or one of the barbiturates gives restful sleep, and quiets vomiting. About twelve years ago, Marriott suggested the use of 5 per cent argyrol in dram doses. This was used, but aside from diluting the stools, not much change was noted. In case of distention and where the stools were practically nothing but thin watery yellow pus, a permanganate enema once a day seemed of fairly marked benefit. Michalowiscz stated that he used silver nitrate, but I found this a little disappointing.

SUMMARY

1. Every year intestinal infections appear to such an extent that they could be termed epidemic.

2. Apparently it is not necessarily the same organism causing the dysenteries.

3. Treatment: Fluids, carefully selected foods, and in lieu of no specifics the use of such medicines as are indicated.

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AUGUST, 1936

EDITORIAL

THE HOSPITAL ASSOCIATION SITUATION IN PORTLAND

During recent weeks considerable newspaper publicity has been given to the action of Multnomah County Medical Society in deciding no longer to sponsor Multnomah Industrial Health Association. In order that the profession of the Northwest may have correct information concerning this procedure, the following explanation is offered which presents a correct report of the manner in which the county society has dealt with this controversy.

For many years the question of hospital associations and contract practice has disturbed the society's tranquility. With the depression the income of physicians diminished as did that of all other groups. Perhaps it was the economic problem that stimulated some doctors to note that much industrial work went to hospital associations, and that a large number of patients were being treated at free clinics. Whether in consideration of or despite these observations it would be difficult to determine, suffice it to say, that a number of the most ethical Portland doctors conceived the idea that prepayment of medical services by employees in the low income group would not only solve the medical problem of these employees, but would also assist physicians in meeting their own problems. They reasoned that, with a physician-owned association, they would have such a large panel as to give practically free choice of physicians, and that with this argument they could attract much of the work which was going to the then organized hospital associations with their very limited panels. By this method, they figured, they could care for the low income group in a manner that would preserve their self-respect. It was hoped that ultimately the commercial hospital associations, with their solicitation of patients, might be driven from the field. With these objects in mind, Multnomah Industrial Health Association was organized. The council of Multnomah County Medical Society, many of whose members had joined the association, set out certain principles with the statement that any association that abided by them would receive the indorsement of the society. The Multnomah Association received this indorsement.

In the administration of their affairs, the Multnomah Association was forced, in order to meet the competition of the commercial associations, to advise employers and employees regarding their organization. This, of course, constituted solicitation in contravention of the code of ethics of the American Medical Association and of the principles promulgated by the council. An attempt was made to eliminate the objectionable features, but was not entirely successful. In the meantime the personnel of the council changed. The Bulletin of the American Medical Association of approximate date contained articles on solicitation of patients and was conducive of much thought and discussion. The members of the society then became divided on the questions involved and a number resigned from the Multnomah organization. However, new members were signing up. The county society, also, addressed the membership on the subject of solicitation.

The matter was definitely brought to a head when a contract was entered into by Multnomah Industrial Health Association and teachers of the public schools. It was felt by many members that this service should not be offered to this class who earned over $1500 a year, and, furthermore, physician members were now obligated to care for their former pay patients as members of the Multnomah Association at the low net fees which the association was able to pay. Added to this was the fact that in order to meet the competition of other like organizations, it was necessary for the Multnomah organization to give coverage to certain executives who had incomes of more than $1800 a year.

A committee was appointed under the chairmanship of Dr. Karl Martzloff to investigate all hospital associations and especially the Multnomah organization. The survey was made under the personal direction of Mr. Ralf Couch, secretary of the University of Oregon Medical School, at a cost of some $900. The committee had complete access to the books of the Multnomah association and also went over the books of Industrial Hospital Association, but were denied access to the books of the National and other associations. This report, which became known as the Martzloff report, could distinguish no essential difference between Multnomah Industrial Health Association as operated and the commercial hospital associations, and advised against the continuance of the approval the council had given the association.

This report definitely divided the members of the society into two groups, those who were opposed to hospital associations and contract practice in any form and those who believed that an organization such as the Multnomah, with the backing of the county society and meeting the organizations on their own ground, could drive the other commercial organizations from the field. The council took action and withdrew its approval from Multnomah Industrial Health Association. A considerable minority disapproved of this action and, in accordance with the provisions of the constitution and by-laws, the questions were referended to the annual meeting to be held on December 18, 1935.

At this meeting, the largest attended annual meeting the society has ever held, the late Dr. J. Tate Mason, then president-elect of the American Medical Association, was the chief speaker. Interest was at such a high heat that it was felt the welfare of the society would be promoted by not voting on the question at that time, but by letting it come before the members at an adjourned session. It was, therefore, voted that an adjourned meeting should be called at such a time as President Brooke deemed advisable. It seemed, on a standing vote on the question, that those members who had interpreted the code of ethics most strictly were supported by members of the hospital associations other than the Multnomah and by other physicians doing contract work. The Multnomah Association members voted almost alone for their program. In the succeeding months the arguments were frequent and at times spirited, and personalities were allowed to enter into the discussion and into the society's publication.

Another matter which has added to the confusion is the fact that Multnomah County Medical Society has upon its roll several members who for various reasons should be dropped. One, for instance, has had his license revoked. Under the present laws it would take about two years and much money to drop him, should he resist loss of membership to the extent of appealing to the civil courts. It is generally agreed that several less flagrant violators should also be disciplined. The by-laws, therefore, were amended by the council to provide that on December 31 of each year all members of the society shall lose their membership in the society except the newly elected council and other officers. These few select holdover members shall restore to full membership all previous members whom they deem not unworthy of membership and shall notify those members who are believed not to be entitled to reinstatement of such action. These may then show cause why they should not have been denied continuing membership.

Some of the members unfortunately conceived the idea that the amendment was intended to drop all those who belonged to certain organizations, but those who initiated this movement disclaim any such intent. It is intended that this by-law shall affect only those very few whom almost every member of the society knows to be outside the circle of ethical respectability. At the next annual meeting the constitution will be amended so as to put the provisions of this new by-law into effect.

Following a consultation with his advisers, President Banner R. Brooke called the recessed session of the annual meeting for July 1, and Dr. Morris Fishbein, editor of *The Journal of The American Medical Association*, was invited to address the society on the subject of medical ethics. Dr. Fishbein made a most masterly address, tracing the history of medical ethics from ancient times and reviewed the past record of the medical profession in its services to humanity without the intervention of a third party, organized or otherwise. Upon a secret ballot vote of the members present on the two questions involved, namely, the acceptance of the Martzloff report and the withdrawal of the approval which had been given to Multnomah Industrial Health Association, the council was sustained in both instances.

There is no thought to penalize those who became members of Multnomah Industrial Health Association through inadvertency or errors in reasoning, or the stringency of the financial situation or perhaps some other reasons, nor is it intended that the organization shall not complete its present contracts, but rather it is proposed that no further contracts shall be made so that, when present contracts are fulfilled, the organization may disband.

In all this discussion one is struck by the utter sincerity and honesty of both sides. Unfortunately, this controversy within the medical society has made the public health insurance-minded in a way that may not bode good for the profession nor for the public itself. Such has been the experience in other countries where the high standard of medical service, as is given in America, cannot be maintained under conditions where the physician-patient relationship is disturbed.

Anything that can be done to make up for the errors that have been made will to that extent reestablish amity and good will between the members. The absolute living up to promises for the future by both sides to the controversy, especially in the matter of making a clean sweep of all hospital associations, will be necessary. When this has been accomplished, members of Multnomah Industrial Health Association may be credited with having made an unpromising situation so distasteful that it had to be corrected. The council of Multnomah County Medical Society, being constituted of outstanding members in whom the profession has confidence, should be able to guide the profession correctly in the matters which come before it. Any plan which is put into effect must have its approval. Its judgment, while safeguarding the members of the medical profession, will guarantee to all patients the highest type of medical services that can be rendered.

WASHINGTON FURNISHES ANTI-SYPHILITIC DRUGS

As a part of their program for the control of syphilis, the Washington State Department of Health now furnishes without cost enough arsenicals to render untreated syphilitic cases noninfectious. When the local health officer receives the report of a case of primary or secondary syphilis, he refers it to the State Department of Health office. As soon as this is received the reporting physician will receive by return mail three tubes of arsenicals with which to begin immediate treatment.

The object is to get all syphilitic patients under treatment as soon as possible and thereby shorten the stage of infectivity and in addition cultivate among the physicians the habit of reporting their venereal cases. This is part of the plan for assisting and encouraging the private physicians in the epidemiologic control of venereal disease which is considered a public health problem, not a police or moral issue.

THE FOURTEENTH AMERICAN MEDICAL DIRECTORY

The medical profession ought to realize the importance of the last edition of the American Medical Directory. This volume, the result of two years continuous labor, presents a wealth of information concerning the medical profession of our country, with varied detailed specifications unobtainable elsewhere. It contains the names of 183,312 physicians, with 13,157 added to the last issue, 7,684 names having been removed because of death. Thirty-two states show an increase of physicians, while twelve show a slight decrease.

In addition to this listing of names and addresses, specialties are included, indicated in connection with each recorded name. There is also an alphabetical list of all physicians of the country with their residence addresses. In addition to this manifold information concerning individuals, there are sections including medical practice acts, boards of health, medical examiners and other allied activities. Also there are lists of hospitals, sanatoria and related institutions with detailed specifications for each. No one volume exists from which can be obtained such a wealth of information regarding the medical profession of the United States and its dependencies and Canada. This volume should be available for all practitioners, especially officers of medical organizations.

THE YAKIMA MEETING

The forty-seventh annual meeting of Washington State Medical Association will be held at Yakima, August 31-September 2, with headquarters at Donnelly Hotel. Monday, August 31, will be devoted to the all absorbing annual golf tournament at Yakima Country Club, play starting at 8 a.m., to which golf addicts are cordially invited. The players may arrange their foursomes by writing to the golf committee with the usual details for entering play. Interesting events and trophies have been prepared. At the same time the golf tournament for the Woman's Auxiliary will be held at Riverside Golf Club, the tournament beginning at 8:45 a.m. The chief social event of the meeting will be the dinner dance at the Country Club, Tuesday evening, September 1.

The guest speakers for the meeting will be Frederick H. Falls of Chicago, Professor of Obstetrics and Gynecology, University of Illinois; William S. Middleton of Madison, Wis., Dean of University of Wisconsin Medical School; Louis H. Clerf of Philadelphia, Professor of Bronchoscopy and Esophagoscopy at Jefferson Medical College; Frank J. Clancy of Chicago, Director of Bureau of Investigation of American Medical Association; Judge Charles P. Moriarty of Seattle. As will be noticed from the accompanying program, each of these speakers will appear in each day's session. The entertainment and program committees are anticipating a large attendance from all parts of the state.

PROGRAM

Monday, August 31

Registration, Donnelly Hotel

8:00 a.m.—Washington State Annual Medical Golf Tournament at Yakima Country Club.

7:00 p.m.—Annual Golf Dinner, Yakima Country Club.

Tuesday, September 1

8:00 a.m.—Registration, Elks Temple.

8:00 a.m.—Meeting of Trustees—no host breakfast, Donnelly Hotel.

8:30 to 10:00 a.m.—Moving Pictures, Obstetrical Films, by John D. Fuller, Seattle.

9:00 a.m.—Meeting of House of Delegates, Elks Temple.

10:00 a.m.—President's Address, D. F. Bice, Yakima.

10:30 a.m.—George C. Miller, Seattle, "Pneumonia."

11:00 a.m.—T. H. Duerfeldt, Tacoma, "Nasal Asthma."
Discussion by Howard L. Hull, Yakima.

11:20 a.m.—Frederick H. Falls, Chicago, "Eclamptogenic Toxemia."
Discussion by R. S. Mitchell, Wenatchee.

Noon

Seventeenth Annual Meeting Public Health League; Luncheon, Commercial Hotel—12 to 2 p.m.

Frederick Sprowl, President, presiding, Spokane.

M. Shelby Jared, Chairman Public Relations Committee and Public Health League, Seattle, "We Face a Crisis."

Frank J. Clancy, Director Bureau of Investigation, American Medical Association, Chicago, "Nostrums and Quackery."

D. F. Bice, President, Washington State Medical Association, Yakima, "Growing Importance of Medical Economics."

Miss Helen Wilcox, Executive Secretary, Public Health League, Seattle, "The League Day by Day."

2:00 p.m.—Walter Kelton, Seattle, "Malpractice."
Discussion by Judge Charles P. Moriarty, Seattle.

2:30 p.m.—W. Ray Jones, Seattle, Report of Social Hygiene Committee.

2:50 p.m.—John Nelson, Seattle, Report of Tuberculosis Committee.

3:10 p.m.—William S. Middleton, Madison, Wis., "Circulatory Problems of Surgery."
Discussion by John M. Blackford, Seattle.

4:00 p.m.—James W. Mouncy, Spokane, "Diagnosis and Treatment of Anal Fissure."
Discussion by George R. Marshall, Seattle.

4:20 p.m.—Frederick H. Falls, Chicago, "The Early Diagnosis of Carcinoma of the Cervix Uteri."
Discussion by S. F. Herrmann, Tacoma.

Evening Entertainment

7:30 p.m.—Dinner dance at Country Club.

Wednesday, September 2

8:30 a.m.—Meeting of House of Delegates, Elks Temple.
Routine business and election of officers.

8:30 to 10 a.m.—Moving Pictures, Obstetrical Films, by John D. Fuller, Seattle.

10:00 a.m.—Donald V. Trueblood, Seattle. Report of Neoplastic Committee on Completion of 5-year study.

10:20 a.m.—Alfred O. Adams, Spokane, "Treatment of Osteomyelitis."
Discussion by W. C. Moren, Bellingham.

10:40 a.m.—William L. Ross, Jr., Yakima, "Urinary Obstruction."
Discussion by Donald G. Corbett, Spokane.

11:00 a.m.—D. H. Nickson, Seattle, "Intravenous Cholephotography."
Discussion by R. W. Shirey, Yakima.

11:20 a.m.—William S. Middleton, Madison, "Coronary Occlusion."
Discussion by C. E. Watts, Seattle.

Noon

No Host University and Fraternity Luncheons

2:00 p.m.—Louis H. Clerf, Philadelphia, "Diagnosis and Treatment of Suppurative Conditions of the Lungs."
Discussion by A. N. Codd, Spokane.

2:30 p.m.—Frank J. Clancy, Chicago, Ill., "Your American Medical Association."

3:00 p.m.—Frederick H. Falls, Chicago, "Relationship Between Fibroids and Carcinoma of the Uterus."
Discussion by C. J. Johannesson, Walla Walla.

3:40 p.m.—H. D. Fritz, Cathlamet, "Traumatic Surgery."
Discussion by R. D. Wright, Mason City.

4:00 p.m.—William S. Middleton, Madison, "The Present Status of the Pernicious Anemia Problem."
Discussion by George H. Anderson, Spokane.

4:50 p.m.—D. F. Bice, Yakima, Installation of President. Presentation of gavel to Washington State Medical Association.

WOMAN'S AUXILIARY
TO
WASHINGTON STATE MEDICAL ASSOCIATION
PROGRAM

Monday, August 31

Registration at Donnelly Hotel

8:45 a.m.—Golf Tournament at Riverside Golf Club.

1:30 p.m.—Luncheon for Golfers and Visitors at Women's Century Club.

6:30 p.m.—Garden supper at home of Mrs. C. A. Rienicke.

Tuesday, September 1

9:00 a.m.—General meeting, Women's Century Club.
Reports of Officers.
Reports of Chairmen of Standing Committees.

11:00 a.m.—"Cosmetic Fairy Tales," Frank J. Clancy, Director Bureau of Investigation, American Medical Association.

1:30 p.m.—Luncheon, Women's Century Club. Chairman, Mrs. Howard Hull. Report of National Convention, Mrs. H. J. Whitacre.
Bridge or Sightseeing Trips.

7:30 p.m.—Dinner dance, Yakima Country Club.

Wednesday, September 2

9:00 a.m.—General Meeting.
Recommendations of Vice-Presidents and Reports of County Presidents.
Report on Credentials and Registration, Mrs. L. L. Lugar.
Report of Chairman of Revisions, Mrs. D. H. Bell.
Report of Nominating Committee.
Mrs. Roscoe W. Smith, Chairman.
Election of Officers.
Report of Resolutions Committee.

11:00 a.m.—Address—M. Shelby Jared, Chairman of Public Health and Public Relations, Washington State Medical Association.

1:00 p.m.—Annual Auxiliary Luncheon, Yakima Country Club.
Presentation of "Roll of Honor."
Announcements.
Cars leave Women's Century Club at 12:45 p.m.
Post-Convention Board Meeting.

THE BOISE PROGRAM

The annual meeting of Idaho State Medical Association, to be held at Boise August 31-September 4, will present a series of lectures by six members of the faculty of Stanford University. The accompanying program presents the list of attractive and instructive subjects which will be considered at this meeting. It will be noted that there are no papers by members of the state association, since the whole program has been converted into a postgraduate course of instruction. The social event of the meeting will be the banquet on the evening of Tuesday, September 1, to be held at Owyhee Hotel. The guest speaker will be Dr. Ralph Lutz, Professor of History at Stanford and Director of the Hoover War Library. He is a well recognized authority on modern diplomacy. The subject of his address will be "The European Crisis of 1936." A large attendance is anticipated at this meeting.

PROGRAM

MONDAY, AUGUST 31

1. Anatomic and Embryologic Principles Underlying Abdominal Surgery. C. Latimer Callander.
2. Recognition and Management of Pyloric Stenosis in Infancy. Langley Porter.
3. Problems of X-Ray Diagnosis in the Intestinal Tract. Howard E. Ruggles.
4. Medical Diseases of the Intestinal Tract. Gordon E. Hein.
5. Practical Surgery of the Large Bowel. George K. Rhodes.
6. Pharmacologic Aspects of Sedatives and Spasm-inducing Drugs and Cathartics. Chauncey D. Leake.

TUESDAY, SEPTEMBER 1

1. Surgical Anatomic Principles Involved in Diagnosis Treatment of Deep Seated Infections. C. Latimer Callander.
2. The Middle Ear; a Consideration of its Complications as they Affect Children. Langley Porter.
3. Infections of the Face, Neck and Retropharyngeal Space. George K. Rhodes.
4. Differential Diagnosis of Chest Infections. Gordon E. Hein.
5. The Pharmacology of Antiseptics Used in Surgery (Critique). Chauncey D. Leake.
6. Value of X-Ray Diagnosis and Treatment in Surgical Infections. Howard E. Ruggles.

WEDNESDAY, SEPTEMBER 2

1. X-Ray Problems in Industrial Medicine and Surgery. Howard E. Ruggles.
2. Abdominal Injuries in Relation to Industry. George K. Rhodes.
3. Modern Aspects of the Pneumonoconiosis Problem as Related to Industry. Gordon E. Hein.
4. Industrial Poisons. Chauncey D. Leake.
5. Gas Gangrene. C. Latimer Callander.

THURSDAY, SEPTEMBER 3

1. Modern Concepts of Sedative Drugs and their Application to Anesthesia. Chauncey D. Leake.
2. A Survey of Abdominal Incisions with Special Reference to Transverse and Oblique Incisions. C. Latimer Callander.
3. Role of the Roentgenologist in Diagnosis and Treatment of Malignant Diseases. Howard E. Ruggles.
4. Recognition and Management of Postoperative Complications as Viewed by the Internist. Gordon E. Hein.
5. Rationale of Treatment of Infections of the Peritoneum with a Consideration of Choice of Anesthesia. George K. Rhodes.

FRIDAY, SEPTEMBER 4.

1. Modern Concepts of the Treatment of Deficiency Diseases. Gordon E. Hein.
2. Use of Opaque Drugs in X-Ray Diagnosis. Howard E. Ruggles.
3. Pharmacology of the Vitamins. Chauncey D. Leake.
4. A New Tendoplastic Transcendylar Amputation through the Femur at the Knee. C. Latimer Callander.
5. Trauma to the Chest and Abdomen. George K. Rhodes.

MEETINGS TO WHICH THE LAITY IS INVITED

1. The Physician's Place in Community Life. Langley Porter.
2. Medicine in Art (Illustrated). Chauncey D. Leake.
3. Process of Digestion as Revealed by the X-Ray. Howard E. Ruggles.
4. Diet. Gordon E. Hein.

WOMAN'S AUXILIARY
TO
IDAHO STATE MEDICAL ASSOCIATION

This program will be presented through a series of twenty-minute talks at daily luncheons, costing 60 cents, at Hotel Boise Emerald Room. Open to the public.

AUGUST 31, 12:30 P. M.

1. Edith Sappington, Washington, D. C. Regional Consultant of Children's Bureau, Washington, D. C.
2. Organization with election of officers following.

SEPTEMBER 1.

1. Health Survey. Mrs. Kathryn McCabe, R. N. Acting Director, Public Health Nursing.
2. The Good Child and the Bad. Langley Porter.

SEPTEMBER 2.

1. Public Health Problems in Idaho. J. D. Dunshee, Public Health Adviser Idaho Department of Public Welfare.
2. Ralph H. Lutz, Professor of History at Stanford University.

SEPTEMBER 3.

1. Health Instruction in Idaho High Schools. R. D. Russell, Professor of Education, University of Idaho.

SEPTEMBER 4.

1. Patent Medicines and Cosmetics. Chauncey D. Leake.

JOURNAL TRUSTEE MEETING

On July 9, in connection with the meeting of Pacific Northwest Medical Association in Portland, the annual meeting was held of trustees and editorial staff of NORTHWEST MEDICINE. A report was presented describing the condition of the journal with its annual official audit. A. G. Bettman of Portland was elected President of the Board of Trustees; C. A. Smith of Seattle, Secretary and Editor. Herbert L. Hartley of Seattle was elected Assistant to the Editor in place of James M. Bowers who has served in this capacity for several years.

MEDICAL NOTES

NATIONAL MEDICAL COUNCIL ON BIRTH CONTROL was organized in June, 1936, (1) to control and supervise all medical policies of the American Birth Control League, and (2) to initiate, encourage and execute appropriate scientific research in the medical aspects of birth control. Its headquarters are at 515 Madison Ave., New York. Frederick C. Holden, M.D., is chairman and Eric M. Matsner, M.D., is executive secretary of the active committee.

THE VOLTA BUREAU at 1537 35th Street N. W., Washington, D.C., was established by Alexander Graham Bell for the purpose of extending help to the deaf. Its services are available without cost to anyone wishing to extend aid to a child who can neither hear or speak, to one whose hearing is somewhat impaired or adults who are losing their hearing. It gives advice as to schools and preschool training for these defective individuals and also offers information regarding fields of activity where they may be employed.

OREGON

Pacific Northwest Medical Association which held its fifteenth annual meeting at Portland last month, was one of the largest attended in the history of the organization. There were 482 official registrations. Visitors included those from Oregon, Washington, Montana, Utah, British Columbia, Wyoming, Colorado, Alberta, Idaho, California and one from Arizona. The program was recognized as most satisfactory and instructive, presented by twelve distinguished members of the medical profession.

Albert T. Baker, formerly of Colville, Wash., died at Retsil Hospital, Retsil, July 10, from senility, aged 89 years. He was born in Jackson County, Iowa, in 1847. He obtained his medical degree from University of Iowa College of Medicine in 1877. During the Civil War he served in 22nd Iowa Infantry. For many years he lived at Colville.

Eastern Oregon Medical Society held its annual meeting at La Grande, June 27-28, with more than sixty physicians in attendance. Papers were read by Lawrence Selling, Frank E. Butler, Blair Holcomb, Grover C. Bellinger, Raymond E. Watkins, A. G. Bettman and Thomas Joyce of Portland; George Swift of Seattle. The subject of each of these pertained to the specialty in which he is practicing. Officers elected for the ensuing year were President, C. O. Wainscott of Pendleton; Vice-President, Charles A. Grant of Baker; Secretary-Treasurer, Gilbert L. McBee of Pendleton.

Hospital Change of Ownership. Pacific Hospital of Eugene, established twelve years ago as Pacific Christian Hospital, has been sold to Sisters of St. Joseph, a Catholic order, which has recently taken possession of the institution. It will hereafter be known as Sacred Heart General Hospital. This is the largest hospital in Oregon outside of Portland. The staff of physicians, nursing personnel and other employees will remain unchanged.

Paul Starr of Portland, a recent graduate of University of Oregon Medical School, has located at Clatskanie where he will engage in general practice.

W. W. Ball, who has practiced for some time at Clatskanie, has moved to Corvallis where he will engage in future practice.

J. P. Russell, who has practiced at Elgin during the past two and a half years, has moved to Grant's Pass where he will engage in general practice.

Wedding. Daniel Meyers of Portland and Miss Nina Denny of that city were married July 4. Dr. Meyers has practiced for some time in Portland where they will continue to reside.

WASHINGTON

Pan-Pacific Surgical Congress, scheduled at Honolulu August 6-14, will be attended by a number of Washington physicians, including Dr. and Mrs. G. W. Swift, Dr. and Mrs. A. T. Wanamaker, Dr. and Mrs. C. W. McKinney, Dr. and Mrs. H. J. Wyckoff and Dr. Minnie Burdon, all of Seattle; Dr. and Mrs. C. W. Countryman of Spokane; Dr. Carl J. Johannesson and John C. Lyman of Walla Walla. Dr. Swift is president of the Congress, while Dr. Johannesson is chairman of the radiological section. He and Dr. Lyman will read papers.

Improvement for City Institution. Firland Sanitarium, the municipal tuberculosis hospital of Seattle, will be improved by additions costing $100,000, the plan being approved by the city council. The major portion of this sum, it is expected, will be provided by the WPA for labor and other contributions.

Klickitat County Medical Society held a meeting at White Salmon June 30. Visitors were present from the profession of Hood River and The Dalles. Arthur C. Jones of Portland discussed physical therapy and R. D. Wiswall of Vancouver spoke of industrial medicine and state medical legislation. J. Payne of The Dalles discussed eye, ear, nose and throat ailments. Mrs. Blair of Vancouver, president of Woman's Auxiliary to the State Medical Association, addressed the local Auxiliary meeting.

A Tri-county Meeting of Skagit, Whatcom and Snohomish County medical societies was held at Mount Vernon, June 29. The meeting was preceded by golf and a chicken dinner. Howard C. Keyes of Bellingham and J. F. Beatty of Everett were the guest speakers. A film from a Chicago Clinic was exhibited.

W. T. Hasler, Jr., has located for practice in Everett, specializing in eye, ear, nose and throat. After graduating from Duke University Medical School, Durham, N. C., he was interne in a Baltimore hospital and later in Lakeview Tuberculosis Hospital at Madison, Wis.

Charles N. Lister has located for practice in Seattle. After graduating from University of Colorado School of Medicine, he served as interne at Swedish Hospital of Seattle and recently has been contract surgeon at a CCC Camp.

Donald Nevitt has located for practice at his home city, Raymond, where he will be associated in practice with his father, O. R. Nevitt. After obtaining his medical degree at University of Minnesota Medical School he served as interne at St. Paul Hospital.

L. B. Ostrom has located for practice in Seattle where he will specialize in pediatrics in association with N. W. Clein. After receiving his degree from the Medical Department of University of Southern California he served as interne at King County Hospital.

H. S. Foskett, formerly of Ventura, Calif., has located at Spokane where he has taken the offices and practice of J. F. Hall. For several years he was located at Pasco as surgeon of the Northern Pacific Railway.

Harold N. Rosengreen has located for practice at Richmond Heights. For some time he has served as resident physician at Seattle City Hospital and Firlands Sanatorium.

Wm. C. Holland, recently of Issaquah, has moved to Tacoma where he will be associated with John N. Alley, superintendent of U. S. Indian Service Hospital.

Frank Boersma, who recently practiced at Nashua, Mont., has located at Vancouver where he is associated with John C. Brougher. After graduating from University of Oregon Medical School, Dr. Boersma served as interne at Anchor Hospital, St. Paul.

Weddings. John O. Taylor of Kent was married to Miss Alma Nelson of Renton Junction at the latter's residence, June 27. Dr. Taylor is a recent graduate of Stanford University School of Medicine and is at present interne at King County Hospital, Seattle. Milton E. Altman of Bellingham was married to Miss Rosalia Gilbert of that city, June 25. Dr. Altman has recently graduated from College of Medical Evangelists at Los Angeles. After a wedding tour, they will locate at Portland, where he will serve as interne at Portland Sanatorium. John A. Gius of Tacoma was married to Miss Martha Marilyn McDonald of Seattle, June 17. Dr. Gius is a graduate of University of Oregon Medical School. They will make their home in New York City, where he has an appointment as fellow in surgery at Presbyterian Hospital. Joseph E. Haddon of Bremerton and Miss Mabel Jean Holland of Seattle were married in the latter city, June 28. Dr. Haddon obtained his medical degree at University of Oregon Medical School and is now practicing at Bremerton. Roland B. Boettner of Everett and Miss Margaret Williams of Bellingham were married in the latter city, June 20. Dr. Boettner obtained his medical degree from the Medical Department of University of Minnesota and served as interne at Jersey City Medical Center, New Jersey. Norman R. Brown of Spokane and Miss Doris M. Eaglesham of Wayburn, Sask., were married at the latter city June 17. After graduating from McGill University Medical School, Dr. Brown interned at New York Orthopedic Hospital. He will practice in Spokane, being associated with Alfred O. Adams.

IDAHO

Shoshone County Medical Society held a meeting at Kellogg July 16. The following officers were elected for the ensuing year: President, W. C. Lindsay of Kellogg; Vice-President, Glenn McCaffery of Kellogg; Secretary-Treasurer, James R. Bean of Wallace.

Karl Benkwitz of Lowell, Mass., has located for practice at Wallace. After graduating from University of Rochester Medical School, he served as interne in a Portland, Ore., hospital.

Otto Moellmer has located for practice at Rupert. He came there from Salt Lake City, where he had been a resident at L. D. S. Hospital.

OBITUARIES

Dr. Lucien P. McCalla of Bellingham, Wash., died suddenly at Georgetown, Tex., July 17, while visiting relatives, aged 70 years. He was born in Alcorn County, Miss., in 1866. After studying at Tulane University, New Orleans, he entered the medical department of Washington University at St. Louis, from which he graduated in 1888. Later he took postgraduate work at Johns Hopkins Hospital. After practicing for a time in central Texas he moved to Trinidad, Colo., and later practiced at Salt Lake City, locating at Boise, Ida., in 1898. In 1924 he moved to Bellingham, Wash., where he practiced until the time of his death. He served as president of Ada County Medical Society, Idaho, and also of the State Medical Association. For six years he was a member of the Idaho State Board of Medical Examiners. He was well known as a surgeon both in Boise and Bellingham.

Dr. Samuel C. Slocum of Portland, Ore., died July 5 of disease of the heart, aged 60 years. He was born in Portland in 1876. He obtained his medical degree from Cooper Medical College in 1900. After serving as interne at St. Vincent's Hospital, he engaged in practice with R. C. Coffey. In 1909 he studied in London and Vienna. For a number of years he was connected with the Portland health department and was coroner of Multnomah County from 1912 to 1914. He was an accomplished golf player and held the Waverly Country Club championship for a number of years. Having practiced for a lifetime in Portland, he was well known among physicians and laymen.

Dr. Charles H. Brewer of Stayton, Ore., died suddenly in his office from disease of the heart, aged 57 years. He was born in Jackson, Neb. He received his medical degree from Willamette University in 1897. He immediately began practice in Silverton. The following year he located at Stayton where he has continued to practice until the time of his death. At one time he served as mayor. He was well known over a large section of the state.

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NOTES

Portland, Ore., July 25, 1936.

Advantage was taken of the presence of many of the councilors in attendance at the meeting of the Pacific Northwest Medical Association, at Portland, and the monthly meeting of the council was held on the evening of July 9, at Multnomah Hotel.

It was reported that Governor Charles H. Martin had appointed a committee to investigate the facilities for the care of the indigent tuberculous patients in the state. It was voted that the Governor be advised that a committee from the Oregon State Medical Society is studying the same subject and they will be glad to cooperate to the fullest extent. Dr. Bridgeman, Secretary of the society, advised the council that Dr. Olin West, Secretary of American Medical Association, had been invited to address the annual meeting of the society in The Dalles.

It was ordered that C. E. Sears and his Committee on Public Policy be advised to prepare a series of articles on medical economics and allied subjects for lay and professional reading. It was ordered that the Medical Reporter be continued for one year and that speakers representing the State Society will be glad to cooperate with the county societies in discussion of economic and other problems which are before the profession.

A. G. Bettman, *Editor.*

WASHINGTON

ANNUAL MEETING AT YAKIMA

We are all set for the annual meeting in Yakima, August 31-September 2. We feel that the program committee has prepared an excellent program of such diversity that it should be of interest to all of our members. The program is presented on page 319 of this issue. The committee tried to have every section of the state represented, and I believe you will find it well worth attending.

There will be some important measures to be voted upon by the House of Delegates, so I hope every society will be fully represented. The By-laws Committee has printed a special revised set of by-laws which should be acted upon at this meeting. Among other subjects is one to have a president-elect, so it behooves the members to concentrate upon what county is to have the 1938 convention.

We are receiving calls for hotel reservations daily, so be sure and answer your post-card inquiry as to whether you will be present at our next meeting.

D. F. Bice, *President.*

BOOK REVIEWS

The Relief of Pain. A Handbook of Modern Analgesia. By Harold Balme, M.D. (Durh.), R.F.C.S. (Eng.), D.P.H. (Lond.), Formerly Professor of Surgery and Dean of the School of Medicine, Cheeloo University, China. 392 pp. $4.00. P. Blakiston's Son & Co., Inc., Philadelphia, 1936.

The author states the purpose of this book is an attempt to gather together the experiences of many years from the practice and writings of men and women of all the world concerning investigation and alleviation of pain. The four parts of the book deal with the problem of pain, general and systemic pain, regional pain, therapeutics of analgesia. These are subdivided into thirty-two chapters, at the end of each being a bibliography, all of which is extensive and comprehensive. It is stated that pain is normally a complex sensation in which physiologic and psychologic factors both play a part, but in abnormal or exceptional circumstances either may predominate to the subordination or exclusion of the other. Pain is classified as sudden, recurring and unremitting. Various methods are discussed for the prevention of pain and much space is devoted to its treatment. "In the whole course of medical practice there is perhaps no more tragic picture than that of the incurable patient with intractable pain." To relieve this are discussed the removal of causes, nerve injection, neurectomy and chordotomy. Under regional pain attention is given to all parts of the body from the head to the feet, each organ being considered in order. Under therapeutics of analgesia are presented many suggestions for applications with formulae for drug treatment.

Diseases of the Nose, Throat and Ear. For Practitioners and Students. Edited by A. Logan Turner, M.D., Ll.D., F.R.C.S.E. Consulting Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh. With the Collaboration of Six Surgeons Connected with this Hospital and Royal Edinburgh Hospital for Sick Children. Fourth Edition, Revised and Enlarged, with 243 Illustrations in the text and 21 Plates, of which 8 are in color. 473 pp. $6.00. Wm. Wood & Co., Baltimore, 1936.

This book covers a wide field of subjects, yet each is brief enough not to be boresome. Many illustrations colored and otherwise lend added value. Under diseases of the nose it is pointed out that cilia comprise the sanitation department of the middle ear and eustachian tube, the nasal accessory sinus and the nose. They move always toward the ostia, those of the nose toward the pharynx where the secretions are swallowed or expectorated. Many symptoms may be traced to the source of suppurating sinuses and possibly no organ of the body is immune from these infections that may be acute or chronic and insidious. It is not known what part is played by vitamins, diet or allergy.

The pharynx is an open book to those who may read its pages and in children one must always keep in mind measles, scarlet fever and diphtheria along with frequent tonsillitis. Vincent's angina, herpes and agranulocytic angina as well as occasional syphilitic lesions are discussed. The most important symptom in affections of the larynx is hoarseness. This may be the first sign of tuberculosis, malignancy, syphilis or vocal cord paralysis. The practice of bronchoscopy and esophagoscopy requires an expert in manipulation of instruments. It is emphasized that all practitioners should know of their possibilities in diagnosis and treatment of certain pulmonary conditions aside from their use for foreign body removal. Perforation of the esophagus is easily done by sharp foreign bodies or unskillful instrumentation and may result fatally from infection.

Many diseases of the ear are described. Much pathologic information may be sometimes obtained by vestibular tests, either caloric, rotation or galvanic. Diagnosis of various types of deafness may be made by intelligent use of assorted tuning fork tests. The use of the audiometer alone is not reliable. Some may be cured by medical or surgical means. Some are not curable. Some may be helped by proper hearing devices. Much valuable information is obtainable from this volume concerning the common diseases of the organs considered. Peden.

Postgraduate Surgery. Edited by Rodney Maingot, F.R.C.S. (Eng.). Senior Surgeon to the Royal Waterloo Hospital and to the Southend General Hospital; late Chief Assistant to a Surgical Unit, St. Bartholomew's Hospital. Vol. II. With 1134 Figures in the Text. 1825 pp. $45 for 3 volumes. D. Appleton-Century Co., Inc., New York, 1936.

This surgical, diagnostic, and therapeutic compilation by eighteen leading British authors deals with the head, spinal column, salivary glands, neck, breasts, thorax, female genital organs, urinary system, male genital organs, sympathetic nervous system, adrenal glands, injection therapy, infections of the hand and orthopedics. The easily readable large print and the clear and abundant illustrations are the most attractive features of the volume. Some of the historical illustrations in particular are striking as, for instance, that of the mother nursing two infants, one in her lap from the normally located breast, the other standing by the chair nursing from a supernumerary breast on the mother's thigh. This is a comprehensive textbook recapitulation of all surgery with no particular advantage over textbooks already published. There are omissions of recent day accepted work. Surgical technic is well illustrated in many portions of the book. Despite these criticisms, one will profit greatly by referring to the volume. Baker.

The Eye and Its Diseases. By 82 International Authorities. Edited by Conrad Berens, M.D., Ophthalmic Surgeon, Pathologist and Director of Research, New York Eye and Ear Infirmary, etc. 1254 pages with 436 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1936. Cloth, $12.00 net.

The field of ophthalmology is admirably covered in this one volume. Each of the eighty-two contributors is outstanding in the particular phase of the subject treated by him. A short outline of the history of ophthalmology is followed by the subject matter in logical order. The first four parts have to do with anatomy, physiology, methods of examination and refraction. Part five takes up diseases of the eye. Medicoophthalmology, muscles, injuries and neuro-ophthalmology follow. The part on therapeutics includes general and local treatment, physical therapy and a large section on surgery. The last four parts are devoted to preventive ophthalmology, immunology, legal aspects and laboratory diagnosis. The book is quite up to date. Recent advances, such as the newer anesthetics, operative treatment of detached retina, the use of contact glasses and telescopic lenses, aniseikonia and other new developments, are included. At the end of each chapter is a selected list of references. It is an excellent textbook of ophthalmology.

BULL.

A STUDY OF MASTURBATION AND THE PSYCHOSEXUAL LIFE. By John F. W. Meagher, M.D., F.A.C.P. Third Edition. Re-edited and Revised by Smith Ely Jelliffe, M.D., Ph.D. 149 pp. $2.00. William Wood and Company, Baltimore, 1936.

The author comments on the fact that masturbation is universal in certain youthful ages, particularly among boys, practically all of whom have practiced it at some time. Those who react most severely to the habit are as a rule intelligent youths of the highest moral type. To cure a youth of a habit which may interfere with his normal psychosexual development, it is not necessary to make him feel inferior, or to cause him undue shame and worry. Probably the clergyman is consulted more frequently than the doctor but the problem is not alone one of morals, but one to be handled most successfully by the educated physician. Stress is placed on the necessity of proper sex knowledge and instruction to youths. Persistent, excessive masturbation is more often a symptom of a psychopathic state than the cause of it. Anxiety and fear of adolescent masturbation can change an individual's whole career, which might have been avoided had he been acquainted with the prevalence of the practice and its real effects. A youth persisting in this form of selfishness may become deceitful, jealous, cruel and obstinate, while some girls may develop a bold and egotistical instead of a timid disposition. The author states that a high ethical and social life, combined with deep and sincere religious practices will be the physician's greatest aid in restraining the unwise adolescent from masturbation. The longer the habit is practiced the longer it will require to overcome it and it is the duty of the parent as well as the physician to attempt to inspire incentives in the child to overcome traits and trends that prevent full cooperation. An antagonistic attitude, censure and punishment are usually harmful. "The problem is one of psychopathology and the best therapy is enlightened psychotherapy."

SYNOPSIS OF DISEASES OF THE HEART AND ARTERIES. By George R. Herrmann, M.D., Ph.D., Professor of Clinical Medicine, University of Texas. With 88 Text Illustrations and 3 Color Plates. 344 pp. $4.00. The C. V. Mosby Company, St. Louis, 1936.

This synopsis is an attempt to provide an acceptable epitome of cardiologic practice. It is intended primarily for the plodding student and conscientious practitioner. The author is guided by his own experiences and follows the outlines of lectures delivered during the last ten years in medical colleges. Each chapter gives a brief summary of the essential principles which it discusses. These include radiologic study, electrocardiography, classification of diseases of the heart, disturbances of myocardial function, coronary thrombosis and other forms of cardiac disturbances. Illustrations are timely and useful.

FOOD, FITNESS AND FIGURE. By Jacob Buckstein, M.D., Consulting Physician in Diseases of the Stomach and Intestines to U. S. Veterans' Bureau, Central Islip and Rockaway Beach Hospitals, etc. 252 pp. $2.00. Emerson Books, Inc., New York, 1936.

So much has been published and broadcasted of late concerning foods and diets, much from unreliable and unscientific sources, that a reliable book is useful for recommendation to the layman. This book seems to contain reliable information on this subject. The author has attempted to present it in simple, nontechnical language understandable by the intelligent layman. There are chapters describing food and physical development, tissue building proteins, the importance of minerals in diet, discussions of vitamins and other food elements. The normal diet, vegetarianism and fasting are discussed. Specific diets are suggested for the purpose of losing, maintaining and gaining weight. Many useful suggestions on the subject of diet are considered.

THE 1935 YEAR BOOK OF GENERAL THERAPEUTICS. Edited by Bernard Fantus, M.S., M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Illinois College of Medicine, etc. 460 pp. $2.25. The Year Book Publishers, Inc., Chicago, 1936.

This is an excellent review of the advances in therapeutics during the past year. Despite the abundance of material, the author has covered the field of foreign and American literature, and presents concise yet thorough abstracts. Many of the most interesting developments are presented in their entirety. During the past year the progress in experimental work in hormones and vitamins is discussed at length, the author also laying stress on items of general therapeutic technic such as insulin in surgery, continuous gastric suction and so forth, toxicology and physical therapy. The book of necessity is rather mixed, but the reader will find it interesting. FITZMAURICE.

A MANUAL OF PRACTICAL OBSTETRICS. By O'Donel Browne, M.B., B.Ch., B.A.O., R.F.C.P.I., L.M. (Rotunda Hospital), M.C.O.G. Assistant Gynecologist, Sir Patrick Dun's Hospital, Dublin. With 10 plates, some in color, and 236 illustrations. 363 pp. $6.50. William Wood and Company, Baltimore, 1936.

This book is mainly devoted to practical obstetric aspects of midwifery and is not intended to displace more comprehensive works. It is the expression of experience of the author gained in practice and in teaching. Very little of theory is presented, the book consisting chiefly of descriptions of methods employed in practical obstetrics. The text is illuminated by a wealth of illustrations covering common and unusual conditions encountered during delivery. The illustrations for the most part show all sagittal sections from the same side, thus avoiding confusion. The toxemias and hemorrhages of pregnancy are described in detail. Roentgen pelvimetry is explained much more fully than in some texts.

(Continued on Page 12.)

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(Continued from Page 324)

Mental Nursing (Simplified). By O. P. Napier Pearn, M.R.C.S., L.R.C.P., D.P.M., Deputy Medical Superintendent, Cane Hill Mental Hospital. Second edition. 328 pp. $2.00. William Wood & Company, Baltimore, 1936.

The purpose of this volume is to help nurses in the care of mental patients by offering practical suggestions. In this edition new subjects have been introduced, additional facts inserted, alterations and improvements have been made. After presenting essential facts regarding anatomy and physiology, instruction is offered in various phases of nursing, such as first aid, hygiene, sick nursing. Detailed attention is given to the nervous system, the mind in health and disease. Many useful suggestions are listed which should aid any studious nurse in carrying out the duties of her profession.

Duration of Sperm Cell Migration in Uterine Secretion: Preliminary Report: Maximum Eighty Hours. William H. Cary, New York (*Journal A. M. A.*, June 27, 1936), presents a few carefully checked observations as to the length of time sperm cells retain normal morphology and migratory power (not merely viability) in the reproductive tract of women. Four cases are abstracted in which migrating sperm cells were found from thirty-six to eighty hours after coitus. The report is necessarily preliminary in character as there is no reason to believe, under the conditions of examination, that the observations are exceptional or approach the potentialities of sperm survival. In three cases presenting favorable conditions "a week or so" after coitus, no sperm cells were found. Negative examinations are of little significance unless all factors conducive to sperm survival are known to exist. Some form of contraception is practiced by most patients unless they are consulting the physician for sterility, and in this group conditions unfavorable for this study are encountered frequently.

NORTHWEST MEDICINE

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PRESENT DAY CONCEPTION OF SHOCK*

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MADISON, WIS.

The purpose of this paper is not to review in too great detail the technical literature of shock but rather to see if the many conflicting views and experiments cannot be reconciled and better understood by a rather simpler point of view and a more rational definition of the word shock. So confusing has the term shock become that some have suggested that it be entirely abandoned. The word, however, is ingrained in our medical language and words are not easily abandoned. What is really needed is a more specific definition.

As generally used, the word shock has meant a group of symptoms associated with low blood pressure. It is thus related to various kinds of circulatory failure. In this sense the term must necessarily be vague, for there are many symptoms and many causes of low blood pressure. It would seem that our knowledge of shock should now be advanced to a point at which a concrete definition could be assigned to the term. I am thinking of more definiteness such as may be illustrated in our use of the word "fever." There are many causes of fever, but when we use the word we do not commit ourselves to any of these. Fever is followed by many physiologic disturbances, but we do not let these confuse us. Fever means a rise in temperature. So in using the word shock, we should not commit ourselves to trauma in the extremities, to burned surfaces or to toxins or a particular kind of fluid loss, nor to central nervous system injuries. We should first have only in mind the fundamental condition which disturbs the normal physiologic functions. From this our discussion can radiate naturally. The identification of this initial cause has been the necessary first step in the better understanding of shock.

Historically the term shock was applied to a state which often follows various traumatic injuries. Whether due to accidental wounds, surgical incisions or the experimental procedures of the physiologist on animals, the symptoms exhibited are constant and characteristic. There is low arterial blood pressure, low venous pressure, small thready pulse, reduced alkali reserve, reduced oxygen consumption, decreased diastolic size of the heart, sweating, cold clammy skin, dusky color, leucocytosis, decrease or loss of reflexes, weakness and thirst.

Of all these signs and symptoms the low arterial blood pressure received first attention. When the systolic pressure reaches 70-80 mm. Hg. for an hour or more, certain results appear which can only be attributed to this factor. Basal metabolism falls since the tissues are inadequately supplied with oxygen. As a result of the deficient oxidation, ketosis appears and there is a consequent decrease in the alkali reserve. The dusky skin and bluish finger nails are also attributable to the same cause. For these and other reasons practically all workers have agreed that low blood pressure is the primary feature of shock.

What is the cause of this low blood pressure? All our ideas of shock depend on the answer to this question. It is elementary circulatory physiology to name the four general ways in which blood pressure may fail. (1) There may be a failure of the myocardium. (2) There may be an obstruction or rupture in some part of the circulatory system. (3) There may be a loss of peripheral resistance, an increased peripheral capacity so that normal pressure cannot be maintained. (4) There may be a deficient volume of the circulating blood.

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*This paper was read at the Pacific Northwest Medical Association Meeting, July 9, 1936.

The last three mechanisms have much in common, although in one there is an abundance of blood and in the other two this fluid is actually lacking. Pooled blood, however, is lost blood so far as the needs of the tissues are concerned.

Theoretically, shock might be due to any of the factors mentioned. The bulk of the evidence is against the heart being primarily concerned. It is the last organ to die both in animals and in human beings. In animal experiments, even after hours of low blood pressure, the heart may be put on artificial perfusion and meet loads far above the normal without signs of failure. In dogs dying from experimental shock, the heart if given fluid on which to work may raise the pressure to 300 mm. Hg. The response to adrenalin is normal. It is true that a low blood pressure means a decreased oxygen supply, but to this the heart is peculiarly resistant. Only in extreme oxygen want does it suffer injury beyond almost instant recuperation. It is doubtful, then, if the heart can even be secondarily concerned. We have recently reinvestigated this point in our laboratory, fearing that after all heart failure due to lack of oxygen might have been overlooked as a factor in shock. In experimental animals we found that even in the presence of anesthesia the oxygen of the atmosphere could be lowered to 10 per cent or more before any cardiac irregularities appeared. This is in agreement with the work of Green.

The loss of vasomotor tonus has received the attention of numerous workers. It was even postulated by Weir Mitchell during the civil war. That such a loss could cause a condition of shock or one very similar cannot be seriously questioned. A reduction in vasoconstrictor impulses would make the vascular system too large for its contents. Blood pressure might thus be lowered to the shock level, and in time all the well known symptoms might appear. In addition to the exhaustion of the vasomotor center, depressor inhibition must also be considered. The experimental evidence, however, is very decidedly against the idea that in all the forms of shock so far studied the loss of vasomotor tone can play a primary rôle. As have many others, we have never been able to lower blood pressure permanently by long continued stimulation of peripheral nerves. If the nerves to the limb of a shocked animal are sectioned there is instant dilatation. But the resistance to perfusion of an artery is maintained or even increased in the early stages of shock.[1] Vasomotor reflexes may also be demonstrated. The vasomotor center is well known to be resistant to all kinds of noxious conditions. Furthermore, war surgeons who did laparotomies on shocked soldiers never reported splanchnic congestion. The body continues to use its great compensatory mechanism for low blood pressure. Although Smith[2] has shown that as shock continues depressor reflexes become dominant and some recent English work again emphasizes the importance of nervous influences, it seems quite unlikely that exhaustion of the vasomotor center can be the common factor in the initiation of the low blood pressure.

By exclusion of two factors, our attention is necessarily directed to the third, a decreased blood volume. Working under the allied Shock Commission, Robertson and Bock by a hemoglobin dilution method showed a reduced blood volume in shocked soldiers. Keith[3] made the same demonstration with his vital red, and also immediately Gasser, Erlanger and Meek[4] showed the same condition in animals shocked by a method devised in our laboratory. Decreases of even 7 to 17 per cent in blood volume were found oftentimes to be sufficient for bringing on all the symptoms of shock. This is not surprising since Gesell[5] has shown that a 10 per cent loss of blood may reduce the flow through an organ by as much as 60 per cent.

The demonstration, happily confirmed by all subsequent workers, that the low blood pressure was due primarily to a decreased blood volume, established the most important fact in our knowledge of shock. But it is still not a fair statement to say a "decreased blood volume," for in many cases the blood is still certainly present somewhere in the body, possibly even in the blood vessels themselves. What we really mean is that there is a decrease in the *effective circulatory volume*. This, so far as we now know, is the common causal factor in all forms of shock. I venture, therefore, to propose it as the definition of shock. Shock is not the state which results from a fall in blood pressure as MacDowell recently says. It is the state which results from a decrease in the effective circulatory volume. The fall in blood pressure is, to be sure, the most characteristic symptom with its own train of results, but it is not the primary cause, for it itself is a result.

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[1] Erlanger, J., Gesell, R. and Gasser, H. S.: Studies in Secondary Traumatic Shock. Am. J. Physiol. 49:90, June, 1919.

[2] Smith, M. I.: Studies on Experimental Shock with Special Reference to Its Treatment. J. Pharmacol. & Exper. Therap. 32:465-508, April, 1928; Peripheral Vasomotor Mechanism in Experimental Shock. ibid, 34:239-257, Nov., 1928.

[3] Keith, N. M.: Blood Volume Changes in Wound Shock and Primary Hemorrhage. Med. Research Comm. (London), Spec. Rep. No. 27, 1919.

[4] Gasser, H. S., Erlanger, J. and Meek, W. J.: Blood Volume by Acacia Method. Am. J. Physiol. 47:302, Dec., 1918.

[5] Gesell, R.: Effects of Hemorrhage and Tissue Abuse in Relation to Secondary Shock. Am. J. Physiol. 47:468, Jan., 1919.

This definition seems to me to aid in our conception of shock in several very important ways. In the first place, it clearly limits what is meant by the term. It does not include all forms of circulatory failure. It excludes the cardiogenic type, in which there is a primary disturbance of the heart with an accompanying high venous pressure. It is restricted to the peripheral circulatory failures and includes all the conditions in which there is a disparity between the blood volume and the capacity of the circulatory vessels. In the second place, it encourages us to direct our attention from the different kinds of shock to the different causes of shock, that is, to the decreased effective circulation which is after all the important thing. There is but one kind of shock, although there may be many causes. With this view in mind many of the contradictions in the literature of shock cease to be so disturbing. They are but variations in the physiologic responses to a well defined cause. And, finally, such a definition recognizes that shock may be present in a great variety of clinical and experimental conditions.

The remark of Brooks and Blalock,[6] "that the mechanism of the production of all types of shock is not the same, or in other words, that there are different types of shock," as demonstrated by the fact that hemorrhage first induces a decrease in cardiac output and then a fall in pressure, while histamine brings out a fall in blood pressure and later a decrease in cardiac output, does not seem to me to interfere in the least with these conclusions. Shock still remains a decrease in the effective circulatory volume. If we wish to classify shock on the basis of the ways in which the volume is reduced, well and good, for that is to be desired, but the fundamental condition remains the same in all cases. If the volume is reduced by hemorrhage, there is at once a marked vasoconstriction which holds up blood pressure, but reduces venous pressure and with it cardiac filling and output. Cardiac output falls before a decrease in pressure. With histamine there is, however, a peripheral paralysis and dilatation which lowers blood pressure but allows venous pressure to remain at a high enough level to keep up the cardiac output. Pressure, therefore, falls before output. These are secondary details, however, depending on the particular manner in which the effective circulation is reduced. In both cases the fundamental condition is identical, there is not enough blood moving under pressure to satisfy the needs of the tissues and from the resulting anoxemia all the classical symptoms of shock appear.

But it must be recognized that, while definitions may guide us and direct our efforts more successfully, they are not in themselves explanations or the end of scientific inquiry. Ever since it was so conclusively proved that in all cases of traumatic shock the effective circulation was decreased, the real problem concerned in understanding shock has been the problem of the "lost blood." Where is it lost and why is it lost? Even today these physiologic questions are far from settled, yet on their answer must depend all ideas of rational treatment.

The older workers looked on shock as hemorrhage, saying "hemorrhage is shock and shock is hemorrhage." While this statement is close to the truth, it is much too crudely put. The effective volume of the blood may be decreased in several ways, of which hemorrhage is but one. There may be a transudation of plasma into the tissue spaces. There may be a withdrawal of fluid by anoxemic tissue cells. There may be stasis in some part of the vascular bed. There may be an increase in the vascular capacity. Any of these conditions will produce typical pictures of shock.

As soon as it was recognized that trauma of a limb might bring on a shock condition of the entire body, explanations developed along two lines: one that the situation was dominated by nervous reflexes and the other that some substance was carried in the blood which proved injurious to the body as a whole. The latter constitutes the well known theory of traumatic toxemia. It developed from English, French and American physiologic work during the great war. It is generally associated with the name of Cannon. It is based on the observations that shock appeared gradually after wounds; that the greater damage, the greater the shock; that anything checking absorption from the injured part, such as a tourniquet, delayed the appearance of shock; that removal of damaged tissue brought improvement. Experimentally the theory was supported by experiments in which a limb was traumatized without results so long as the artery and vein were ligated, but on removal of the ligatures, shock at once came on. Ligation during the development of shock brought on recovery. Others soon showed that fluid from an injured limb was toxic, that blood from a shocked donor would induce shock in a recipient.

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[6] Brooks, B. and Blalock, A.: Shock with Particular Reference to That Due to Hemorrhage and Trauma to Muscles. Ann. Surg., 100:728-733, Oct., 1934.

Long before these developments Heidenhain had found that peptone produced a marked fall of blood pressure and later Dale and Laidlaw had shown the capillary injuring properties of histamine. The proponents of the toxemia theory at once postulated that in damaged tissue substances similar to histamine were produced, and the effect of these products on the capillaries was to bring about dilatation and increased permeability. The effective circulation has thus decreased but because of stagnation and loss of plasma into the tissue spaces.

This conception of shock met nearly all facts known at the time, which is the test of any really useful theory. For a dozen years it was almost universally accepted and even today generally constitutes the total information of the majority of people on the subject of shock. But in the last year or two traumatic toxemia has been seriously questioned along several lines.

Skeletal muscles contain only small amounts of histamine, and herbivorous animals do not react to this substance with a fall of blood pressure, although they do show shock. Of course, other decomposition products might be present in traumatized tissue, particularly adenosine which causes not only a fall of blood pressure but a leucocytosis. The question as to whether toxic materials can be extracted from traumatized tissue has given rise to a very controversial literature. Both Smith and Parsons and Phemister[7] were unable to confirm the earlier workers on this point. Probably the most careful work has recently been done by Roome and Wilson[8] who find that fluid and muscle extracts from a traumatized leg contain both pressor and depressor substances which act, however, for only a short time. The bad effects reported by previous observers seem to have been due to fat droplets, muscle shreds and coagulative effects. When the extracts were centrifuged and heparin was injected in the recipient, the tissue fluid injections had no injurious actions.

Both Phemister and Blalock[9] believe that the extravasation of blood into the damaged tissues is a sufficient explanation for the decreased volume and fall of blood pressure in traumatic shock. The evidence for this is both indirect and direct. Massage of a traumatized limb does not further increase shock as it should, according to the theory of toxemia. The concentration of the blood also bears out the contention that the loss of blood is due to extravasation. Following both hemorrhage and trauma, there is a reduction in the red blood cell count. This is due to the well known passage of tissue fluid into the blood stream after hemorrhage. In histamine poisoning, however, the red blood cell count rises, due to loss of fluid through the injured capillaries. The evidence favors the idea that traumatic shock is a form of hemorrhage. The plasma in shock was never stained with hemoglobin as it should have been, if there was reabsorption of hemolyzed blood. Furthermore, transfusion of blood was always effective in permanently restoring blood pressure unless the condition had persisted until there was irreversible injury to the central nervous system.

If I should be bold enough to make any criticism on the recent work, it would be that for the particular forms of trauma studied the results are so clean cut and conclusive that they have diverted our attention from contributing factors and the other ways in which shock may be produced. So voluminous has been the recent literature that outside of the workers themselves few realize that the state of shock can be initiated by anything but trauma. Which is really sufficient argument, I take it, for my revised definition.

Although the later workers have made a real advance in our knowledge of shock from trauma, I do not believe that, if we reason strictly, the possibility of shock from toxemia can be entirely excluded. We cannot be 100 per cent sure of negative proofs. If someone succeeds in finding a toxin, we shall quickly change our minds. Histamine may be out of the picture, but the biochemist promptly brings in adenosine, a product of muscle degeneration and a marked vasodilator which may do quite as well as histamine. Whether or not hemolysis, which might supply vasodilator substances, occurs in shock from trauma is still a matter of controversy. Furthermore, the local loss theory may quite adequately explain shock from trauma in an anesthetized dog, but the experiment is not entirely comparable to the soldier wounded in the excitement of battle with flesh often exposed and necrotic. That the two conditions may be fundamentally different is suggested by the reported blood concentrations. In traumatized dogs there is a dilution of the blood as determined by the red cell counts, which speaks for hemorrhage. The war workers, however, reported red blood cell concentration even in the face of hemorrhage, which could only be explained by loss of plasma from capillary injury. Shock produced by histamine or massive doses of adrenalin also leads to concentration as I can testify from personal experience. It does not, therefore, seem to me that the absorption of toxic material from open wounds in man is yet entirely disproved. It is at least possible.

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[7] Parsons, E. and Phemister, D. B.: Hemorrhage and "Shock" in Traumatized Limbs; Experimental Study. Surg., Gynec. & Obst., 51:196-207, Aug., 1930.

[8] Roome, N. W. and Wilson, H.: Experimental Shock; Effect of Extracts from Traumatized Limbs on Blood Pressure. Arch. Surg. 31:361-370, Sept., 1935.

[9] Blalock, A., Beard, J. W. and Johnson, G. S.: Experimental Shock; Study of Its Productions and Treatment, J.A.M.A., 97:1794-1797, Dec. 12, 1931.

In the effort to establish either the toxemia or the local loss theory of shock from trauma, nervous factors have been pretty generally either denied or ignored. It is true that Bayliss and Cannon attempted to show the unimportance of nerves by demonstrating shock after the nerves to the limb had been cut, and this has been confirmed by some of the later workers. On the other hand, Smith, while denying local toxin production and recognizing the importance of local hemorrhage, emphasized a depression of the peripheral vasomotor mechanism. Many surgeons have also felt that local blood loss could not be entirely responsible for the development of shock in every patient.

The evidence for a nervous factor has within the year been more carefully investigated by O'Shaughnessy and Slome[10] of the Buckston Browne Research Farm in England. They produced shock in the usual way by traumatizing the legs of anesthetized cats. Perfusion of the traumatized leg through the femoral artery never gave a perfusate that had any toxic effects, even though vivi-diffusion methods were used. They, therefore, gave up the idea of diffusible toxins entering the circulation from damaged areas. They easily confirmed other workers that hemorrhage of 36 to 50 per cent of the total blood volume into the leg produced shock in a very short time. However, they had experiments in which shock occurred quite as readily when only 20 per cent of the blood volume was lost. The survival time did not then show a relation to the fluid loss. This convinced them that other factors were operating, probably nervous.

This argument seems to me justified on other grounds as well. Work in our laboratory has shown that the blood volume of cats is about 5.5 per cent. Also that the compensatory mechanisms in hemorrhage[11] hold up until the loss equals between 2 and 3 per cent of the body weight. A 20 per cent blood volume loss, being only 1.1 per cent body weight in the cat, should not generally produce shock.

It is true that many workers have shown that, if a limb is rendered completely anemic by tying off both arteries and veins, it can be traumatized without throwing the animal into shock. The English workers, however, refused to accept this as proof for the lack of nervous influence in shock, pointing out that an anemic limb is also an anesthetic limb. I cannot find any very careful studies on the relation of anemia to nervous discharges from sense organs but we should all probably grant the exception was well taken.

The problem was then attacked in the direct way. On section of the obturator, femoral and sciatic after infiltration with novocaine, it was found that shock failed to develop. One animal even withstood trauma for six and one-half hours with blood pressure at 130 mm. Hg. pressure when killed. Section of the spinal cord proved to be a less satisfactory form of denervation, probably because the necessary operation involves considerable tissue injury. A more practical way was by the induction of spinal anesthesia. If trauma is not inflicted until the knee jerk has been abolished, the animal will not show shock for many hours, but on cessation of the anesthesia blood pressure soon begins to fall and the condition becomes typical. This is a rather remarkable finding, since it is well known that spinal anesthesia itself lowers blood pressure by cutting off vasoconstrictor influences. Animals in spinal anesthesia are also known to be more than ordinarily susceptible to hemorrhage.

It is important that these experiments be confirmed by others but they give evidence for concluding that in all probability there are two factors concerned in experimental shock from trauma, one a local loss of fluid and the other the discharge of nociceptive stimuli from the injured regions. Although no one has been able to demonstrate a delayed shock by actual stimulation of nerves, it might be a factor which often makes certain degrees of hemorrhage effective.

O'Shaughnessy and Slome are rather vague in suggesting how reflex nervous impulses aid in inducing shock. The body contains reserves of fluid and the failure to restore the effective volume may in some way be interfered with by the continuation of the abnormal nervous stimulation. Beyond this the English workers have no suggestions.

Another attempt to unravel the role of the nervous system in shock has recently been made by Freeman,[12] who has investigated the possibility of sympathoadrenal activity. His work has not received the attention that it probably deserves. Since a reduced blood volume is the ever present primary condition of shock, the problem was to find what effect sympathetic hyperactivity had on this factor. As a test animal he used Cannon's cats exhibiting sham rage. If the cerebral cortex of a cat is removed, on recovery the animal shows all the physiologic phenomena of intense sympathetic stimulation. It claws, spits, lashes its tail and there is erection of the hair, dilatation of the pupils, an increase of blood sugar and a rapid heart rate. All this indicates hyperactivity of the sympathoadrenal system. In these animals using the plasma dye method, Freeman found in fifteen experiments a 22 per cent decrease in blood volume. Furthermore, there was a segregation of the corpuscles in the capillaries and an expression of the plasma into the tissue spaces just as the war workers reported in their human cases. In these animals there was no question of toxins from traumatized muscular tissue.

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[10] O'Shaughnessy, L. and Slome, D.: Etiology of Traumatic Shock. Brit. J. Surg., 22:589-618, Jan., 1935.

[11] Meek, W. J. and Eyster, J. A. E.: Reactions to Hemorrhage. Am. J. Physiol., 56:1, May, 1921.

[12] Freeman, N. E.: Decrease in Blood Volume After Prolonged Hyperactivity of Sympathetic Nervous System. Am. J. Physiol., 103:185-202, Jan., 1933.

That it was a true sympathoadrenal effect was proved in several further ways. After the injection of ergotoxin which paralyzes the thoracolumbar constrictors, there was no decrease in circulating blood. Cats which had their sympathetics previously removed showed no fall in blood pressure. And, finally, the slow infusion of adrenalin for about two hours reduced blood volume as much as 27 per cent.

The way in which sympathetic activity lowers blood volume is believed to be by a long continued contraction of the arterioles which leads to asphyxia of the vessel walls and a resulting increased permeability. A loss of plasma and a stagnation of red cells would naturally result. The dusky skin, bluish finger nails and capillaries packed with corpuscles could thus be readily explained. Obviously asphyxia and hemorrhage would cooperate in producing the state of shock. Malcolm long ago put forth the view that nervous influences might bring about an overconstriction to the arterioles and squeeze fluid out of the blood vessels. Gasser, Erlanger and myself have shown that adrenalin could produce shock by its vasoconstrictor properties, but the amounts we used were far beyond any physiologic secretion.

You may ask, if all this be true why don't we go into shock every time we get emotionally excited? Sympathoadrenal activity causes constriction in many great regions of the body, but in the muscles there is dilatation. In emotional states this dilatation compensates for overconstriction. Too great pooling of the blood in the muscles is, however, prevented by their activity which is always an accompaniment of the emotional state. The net result is a normal physiologic rise in blood pressure. In traumatic injury, however, the effects of a preceding emotional phase, dread of operation or excitement in battle are augmented and continued by painful stimuli from the injured areas. Pooling of blood in the muscles is not prevented by muscular activity for movement has become painful. Other disagreeable sensations, cold in particular, add to the condition.

Overactivity of the sympathoadrenal mechanism as a contributing cause of shock may explain many of the discrepancies between the early advocates of the toxemia theory and the later experimental surgeons. An anesthetized dog is not comparable to an excited conscious soldier. In the former there is only loss of blood. In the latter there is loss of blood plus excitement. The toxin may even be looked upon as adrenalin or sympathin. It is too soon to draw definite conclusions from this recent nervous aspect of traumatic shock, but I feel sure enough has been done to add a nervous factor, whatever the mechanism of operation or its ultimate importance may prove to be.

In this rather long discussion of traumatic shock other causes must not be forgotten. The nervous effects so far mentioned originate in the traumatized region and are so masked by hemorrhage or extravasation that it is little wonder they are still under question. But there are cases of shock rapid in appearance and accompanied by little or even no trauma and loss of blood that can only be attributed to nervous activity. These are the cases of so-called "primary shock." Syncope from emotional distress is a typical example of the psychic form. Collapse from a solar plexus blow, the Goltz experiment on man, is a reflex or neurogenic form. In these instances the decrease in this effective circulatory volume is apparently brought about for the most part by a greatly increased vascular capacity. The vasoconstrictor center is inhibited or the vasodilators stimulated. This strictly nervous form of shock is usually short lasting. It is, therefore, unassociated with noticeable chemical or physical blood changes. It is often seen following some very minor operation. The student who collapses the first time he donates a syringe full of blood from an arm vein is, I suppose, a typical example. Obviously the disturbance may be contributory to shock from other causes. Phemister and Livingston,[13] in discussing the subject, quite properly object to the terms "primary" and "secondary" shock and point out that the basis of difference should not be one of time but of etiology. They, therefore, suggest the terms psychogenic and neurogenic. Very obviously I am a convert to their views.

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[13] Phemister, D. B. and Livingston, H.: Primary Shock. Ann. Surg., 100:714-727, Oct., 1934.

It should, I think, be pointed out that every case of sudden death is not an example of neurogenic shock. Some of those described in the literature have pretty surely been due to the anesthesia, or possibly cardiac disturbances.

There are other causes of shock which depend on an increased capacity of the vascular system. Normal tissue has many more capillaries than are ever needed. Krogh pointed this out for muscle long ago. Quite recently Sjöstrand[14] has shown that the peripheral vessels, sinusoids and capillaries, if maximally dilated, might accommodate all the blood of the body. Sinusoids of extraordinary capacity are found in the lungs, spleen and digestive tract. They are dilated by narcotics, by physical excitation and by the stimuli from laparotomies. Histamine is the classical example of a chemical substance that brings on shock by means of capillary dilatation and a marked disparity between volume of blood and volume capacity.

Many poisonous substances are known to the pharmacologist, the administration of which results in shock. These are capillary poisons and they produce a capillary permeability as shown by Landis' direct determinations. Mercuric chloride causes capillaries to become seven times more permeable. Alcohol, urethane, veronal produce similar effects. Blalock has reported spontaneous shock from barbital anesthesia which is probably of the same nature. Horral and Carlson[15] showed a shock-like condition from the intravenous injection of bile. Similar actions of peptone and albumose are classical.

One of the conditions most recently shown to be followed by the development of all the characteristic signs of shock is the lack of adrenal cortical hormone. Whether or not this is of any clinical significance is not at present known. Animals deprived of their adrenal cortex show a decreased blood volume, concentration of blood and low blood pressure both arterial and venous which is followed by weakness, prostration and death. It is largely on these grounds that many believe the cortical hormone controls capillary permeability and thereby exchange of body fluids.

Another condition which, according to our conception, is essentially shock, is the so-called circulatory collapse which follows infectious fevers. Atchley[16] has even spoken of this as "medical shock" and the point of view is well supported by a recent paper of Warfield's.[17] The functional capacity of the heart was long ago shown not to be damaged by severe experimental infections, neither was there a loss of vasomotor tone. There is, however, congestion of many organs. The lungs are large and full of fluid. Petechial hemorrhages are widespread. The abdominal organs are wet and the blood is concentrated. All this speaks for a decrease in the effective blood volume due to stasis and capillary damage. Moon[18] insists that pneumonia is often secondary to moderate shock produced by various causes.

But hemorrhage and capillary damage do not represent the only way by which blood volume may be reduced. Dehydration of all kinds must result in shock-like conditions, a conclusion borne out by clinical evidence. An interesting variation of this form of shock production has been under our study for some time, namely intestinal obstruction. A few years ago Herrin and myself[19] found that the complete picture of acute high intestinal obstruction could be reproduced by distention of a Thiry jejunal loop. In actual obstruction the hydrostatic pressure of the accumulating fluid exerts considerable pressure inside the lumen of the intestine. It was the result of this pressure, a neglected factor in intestinal obstruction, that we started out to study. The Thiry loops were made with surgical asepsis just below the ligament of Treitz. After the dogs were fully recovered and in the best of condition the loops were distended by inserting a balloon inflated with air pressure to about 80 mm. of Hg. The pressure was renewed so that it never fell below 50 mm. A small catheter was inserted along the side of the balloon so that the secretions might escape and not further augment the distention.

Clinically these animals run the following course. There is first depression of activity. Retching and vomiting occurs, but it is not marked and often absent. The animal loses weight and appetite has disappeared by the third or fourth day, a condition also noted by Burget[20] in similar conditions. The temperature decreases one or two degrees. The skin becomes dry and dusky in color. The reflexes are greatly diminished. The pulse is thready and both venous and arterial blood pressures are low. There is every evidence of a low basal metabolism. The dog passes into a state of coma and on the average dies within a week. The final appearance of the animal has every indication of shock.

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[14] Sjöstrand, T.: On Capillary Circulation of Blood in Suprarenal Body of Mice Under Physiological Conditions and Influence of Drugs. Scandinav. Arch. f. Physiol., 71: 85-122, 1934.

[15] Horrall, O. H. and Carlson, A. J.: Toxic Factor in Bile. Am. J. Physiol., 85:591-606, July, 1928.

[16] Atchley, D. W.: Medical Shock. J.A.M.A. 95:385-389, Aug. 9, 1930.

[17] Warfield, L. M.: Treatment of Circulatory Failure. J.A.M.A., 106:892-895, March 14, 1936.

[18] Moon, V. H.: Shock Syndrome in Medicine and Surgery. Ann. Int. Med., 8:1633-1648, June, 1935.

[19] Herrin, R. C. and Meek, W. J.: Distention as Factor in Intestinal Obstruction. Arch. Int. Med., 51:152-168, Jan., 1933.

[20] Burget, G. E., Martzloff, K., Thornton, B. C. B. and Suckow, G. B.: Closed Intestinal Loop; Observations on Dogs with Jejunal and Ileal Loops and Chemical Analyses of Blood. Arch. Int. Med. 47:593-600, April, 1931.

The blood changes bear out this conclusion. To be noted particularly are the decreases in body weight, the increase of hemoglobin concentration, the increased red blood cell count and the decreased blood volume both actually and in percentage. This decrease in volume is also shown to be a plasma loss. The condition, therefore, fulfills the major characteristics of shock. Just as shock produced by one cause cannot be expected to have all the secondary results exactly alike, so here we find the low NaCl values which are so marked in obstruction. Since there is little vomiting in these animals, there is no great loss of the chlorine ion and alkali reserve is not greatly changed. The latter may, however, be reduced in the terminal stages as in shock by the greatly reduced oxidations and resulting acidosis.

The loss in blood and plasma volume which identifies this condition as one of shock is easily shown to be due to the secretion through the distended loop. Ivy long ago showed that distention might be the cause of gastric secretion. The same mechanical stimulation is remarkably effective on the intestine.

The rate of secretion may be increased as much as 2100 per cent, rising for a given loop from 1 cc. per hour to 218 cc. From a short loop the daily loss may thus amount to half a liter or more. Unless this is compensated for, very evidently the animal must very soon have a depleted blood volume.

The intestinal secretion carries with it the normal salt content. This accounts for the NaCl loss. The secretion in itself is normal as tested by its digestive activity. The damage is done by the great fluid and salt loss.

The source of the fluid lost is disclosed by a tissue analysis for water. It will be found that the skeletal muscle furnishes a relatively small amount. The skin, however, known to be a major water reservoir, has yielded a rather large supply. Curiously the intestine itself is not at all depleted. It may be asked why the animals do not compensate for their fluid loss by increasing the water intake, in other words, by eating and drinking more water. Observations showed that one of the first unfavorable symptoms from distention was a loss of appetite. Even water drinking was reduced to a minimum. It seemed to us this might be due to nervous stimuli from the distended segment of the intestine. These experiments are somewhat removed from the actual subject of shock, but they illustrate the many ramifications that can be expected in all kinds of pathologic conditions. We decided to denervate the loops before distention. When this was done it was found that appetite remained undisturbed and the animals did compensate for the secretory losses. Toxins from the loop were then not playing a major rôle in the production of the symptoms. As soon as an animal succeeded in keeping up its blood volume and salt content, it could withstand distention indefinitely. In some cases the animals were run twenty-five days and then discarded in almost perfect physical shape. Subsequent experiments have shown that the sensory nerves concerned run either in the vagi or the splanchnics.

The actual cause of death in animals with distended loops may be attributed either to loss of blood volume or to depletion of chlorine. It is impossible to separate the two factors successfully. As a matter of fact a decrease in chloride, no matter which ion is responsible for the effect, is associated with loss of water as is known from the studies on edema.

In defining and discussing shock and giving some of its causes I have said nothing about the possibilities of relieving the condition. The details of therapeutic measures are quite out of the province of an experimental physiologist but some of the general lines of approach may properly be mentioned. The first obvious form of relief would be to restore the blood volume. The proposed solutions have received so much attention that they may be passed briefly. Blood itself would seem to be without question the first substitute. Artificial salines plus colloids, which would maintain the osmotic pressure of the blood and so oppose plasma filtration, are second in importance. Acacia and gelatin solutions have been suggested. That acacia reduces plasma loss was demonstrated by Erlanger and Gasser.[21] Its use has recently been questioned because of reported liver damage. Strong hypertonic solutions, particularly glucose, draw in fluid osmotically, but are effective only for a limited time. Simple salt solutions are not of much value, since it is well known that even under normal conditions they favor transudation through the smaller blood vessels.

The principle which determines the value of injecting blood or any blood substitute in shock is the permeability of the capillaries at that particular time. No matter how shock may be brought about by poisons and toxins, by nervous effects or by actual blood loss, the permeability of the capillaries is a striking feature of the picture. It may be initial or secondary. In shock from hemorrhage it is secondary, due to anoxemia, the effect of which in the capillaries has been demonstrated by Landis.[22] All injected solutions, therefore, seem to be of little value if shock has persisted for more than a short period. Immediately after hemorrhage almost any of them are effective. Later their value is greatly limited.

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[21] Erlanger, J. and Gasser, H. S.: Studies in Secondary Traumatic Shock. Am. J. Physiol. 50:119, Oct., 1919.

There is scarcely a more important study in all physiology than that of capillary permeabilities. If a method of control or improvement of capillary damage could be discovered, treatment of shock would enter into a very hopeful phase. Recently the use of cortin has been suggested for this purpose. Swingle[23] and his coworkers have for some time published observations that after removal of the cortical portion of the adrenals there was an inability of the body to maintain its water and salt balance. This was believed to be due to a failure of a diluting mechanism, cortin being necessary for the passage of body fluids into the blood stream. In accordance with this idea Swingle found that an adrenalectomized dog is much more susceptible to trauma than a normal one. The susceptibility was related to the amount of cortin which the adrenalectomized animals received. If a dog with low blood pressure received cortin with its transfusion fluid, pressure was at once restored.

Heuer and Andrus[24] tested the use of cortin in cases of shock produced by injections of strangulated intestinal loop extracts. The hormones gave definite protection from the fall in blood pressure, the plasma loss being reduced. Adrenal extract added to the perfusion solutions raised blood pressure and restored the plasma value even in the later stages of shock when perfusions alone were useless.

Recently we have in our laboratory tried cortin in the shock following intestinal distention. In three dogs there has in each case been a diminution of the red cell count and a decrease in the hemoglobin determinations. There was no marked change in the salt content of the plasma. The evidence from several sources is thus at least promising that in cortin we may have an agent which modifies capillary permeability favorably.

That a decrease in blood volume finally results in a lowered alkali reserve was shown by the earliest war workers. It was soon proved that this is not a cause of shock but a secondary phenomenon, for CO_2 capacity may be markedly reduced by the injection of acid without any fall in blood pressure appearing.

The effect of shock caused either by hemorrhage or trauma on the CO_2 content and capacity may be seen in the curves drawn by Coonse and his fellow workers. With the fall in blood pressure there is a decrease in both CO_2 capacity and content. The reasons for this are not hard to find. The decreased effective circulating volume results in anoxemia of the tissues. Acid products accumulate which greatly lower the available base both in the plasma and the corpuscles.

The CO_2 in solution is constantly being eliminated through the lungs and, since the production of CO_2 is actually reduced by the anoxemia, a condition of acarbia as well as decreased alkali reserve ensues. A true acidosis also begins to appear. The decreased CO_2 content of the blood interferes with the unloading of O_2 from the hemoglobin and reduces the tonus of both the respiratory and cardiovascular centers. This means a vicious circle for the initial loss of effective blood volume is now augmented by stasis in the smaller blood vessels, due to loss of central tonus, local peripheral dilatation from the accumulating acids and capillary transudation because of damage from the lack of oxygen.

To relieve the situation inhalation of CO_2 was long ago suggested. Since the amount of CO_2 held in the blood depends on the H_2CO_3 over $NaHCO_3$ ratio, this form of relief could only be temporary. The general testimony is that the animal or patient quickly reverts to his original state. CO_2 plus oxygen would be much more logical.

Coonse[25] and his coworkers have recently revived the use of bicarbonate both experimentally and clinically with good results. They showed that both alkali reserve and CO_2 content of the blood were brought back to normal. The increased CO_2 content stimulated the vital centers and blood pressure was raised and maintained. The bicarbonate was most successful when given with transfusions and over a considerable period of time.

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[22] Landis, E. M.: Microinjection Studies of Capillary Permeability; Factors in Production of Capillary Stasis. Am. J. Physiol. 81:124-142, June, 1927.

[23] Swingle, W. W. and Parkins, W. M.: Comparative Study of Effect of Trauma on Healthy Vigorous Dogs with and without Adrenal Glands. Am. J. Physiol. 111: 426-439, March, 1935.

[24] Heuer, R. C. and Andrus, W. D.: Effect of Adrenal Cortical Extract in Controlling Shock Following Injection of Aqaeceous Extracts of Closed Intestinal Loops. Ann. Surg. 100:734-749, Oct., 1934.

[25] Coonse, G. K., Foisie, P. S., Robertson, H. F. and Aufranc, O. E.: Traumatic and Hemorrhagic Shock; Experimental and Clinical Study. New England J. Med., 212:647-663, April 11, 1935.

Coonse has also pointed out some of the mechanical factors in shock which are of great interest. Along with the fall of blood pressure there is an increase in abdominal respiratory excursions but a great decrease in intercostal activity. This is well known by anesthetists to be a sign of impending respiratory paralysis. With the decreased excursion of the chest there is a decrease in the intrapleural pressure. The aspiratory effect which normally aids the circulation is thus lost. The administration of bicarbonate by stimulating the respiratory center cause a revival in these factors and greatly aided the circulation.

One other point should be mentioned in discussing the acidosis of shock. The acid salts resulting from decreased oxidation aid in reducing the volume of the blood stream by the withdrawal of fluid to the acid-laden cells. The problem of the lost blood thus involves a great deal more than that lost by mere hemorrhage or extravasations. The latter may even be almost entirely masked by the fixation of the fluid in the tissue cells.

Practically the treatment of shock is to prevent it, either in man or animals, for many a physiologic experiment otherwise good is ruined by peripheral circulatory failure and low blood pressure. If patient or animal is closely enough watched, protected from too great sensory stimulation, kept warm and has its blood volume supported by infusions, the situation is hopeful and usually handled with ease. But if the critical level of shock is reached, we are still nearly helpless.

SUMMARY

Shock is a term which may be defined according to its one fundamental condition. It is a decrease in the effective circulatory volume. It is followed by a set of pathologic-physiologic reactions which may show some variation but which are rather remarkably uniform. The most important of these are the production of tissue anoxemia and increased capillary permeability. These responses involve further fluid losses so that the condition becomes self-perpetuating.

There is, then, but one kind of shock. There are, however, many causes of shock. Hemorrhage is the most obvious. Trauma has been most studied. Trauma of an anesthetized animal undoubtedly produces shock by the local loss of blood in the traumatized region. Although the existence of a traumatic toxemia is not yet satisfactorily demonstrated, this cause is by no means unlikely in cases with infected or necrotic wounds or burns.

The idea of a nervous factor in shock has recently been revived. This may be by nervous reflexes which stimulate vasodilator mechanisms, or which interfere in some unknown way with fluid exchanges through the capillary walls. A nervous factor may also result in hyperactivity of the sympathoadrenal system which in turn may bring on anoxemia because of the prolonged vasoconstriction. Psychic excitation may act similarly.

There is some evidence that the so-called circulatory failures after infections may be shock. An interesting experimental form of shock follows the distention of intestinal loops. In this case the effective circulatory volume is reduced to the shock level by an uncompensated secretion of intestinal juice.

Physiologic suggestions for the relief of shock center around the restoration of the blood volume, the control of capillary permeability, the use of bicarbonate to control the acidosis and to stimulate the cardiovascular centers, the elimination of noxious sensory impulses and the therapeutic use of oxygen.

PRACTICAL POINTS IN THE MEDICAL TREATMENT OF ARTHRITIS *

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A broad conception of the disease process present is necessary for accurate prognosis and wise choice of medical treatment in the individual case of chronic arthritis. I wish to present, first, a diagramatic evaluation of infection; second, a schematic view of the pathology present, and based upon this and clinical experience, a tabulation of incidence of types, frequency, prognosis and type of medical treatment most likely to be efficacious in the individual case.

There are two diagrams which I have evolved to aid me in visualizing the joint changes in the individual case of arthritis. Because these concepts do enable me to visualize the local and systemic implications of the disease, I have used them as a basis for a schematic tabulation of prognosis and treatment.

The first diagram (fig. 1) has to do with the etiology of chronic arthritis. Undoubtedly, infection plays an important but variable role. This can be visualized by means of an inverted pyramid. If we place on the broad upper surface of the pyramid a case of streptococcal sepsis, we have exemplified a disease in which infection is the sole etiologic

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* From Medical Department, King County Hospital.

* Read at a meeting of Yakima Medical Society, Yakima, Washington, March 9, 1936.

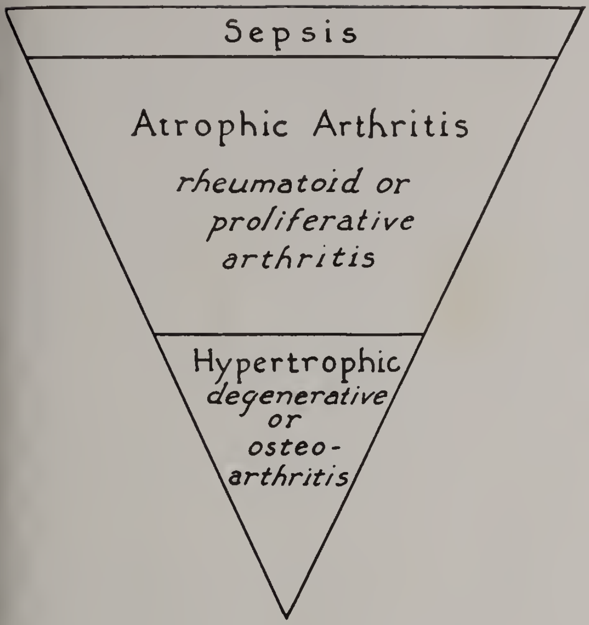

Fig. 1. Etiology of chronic arthritis.

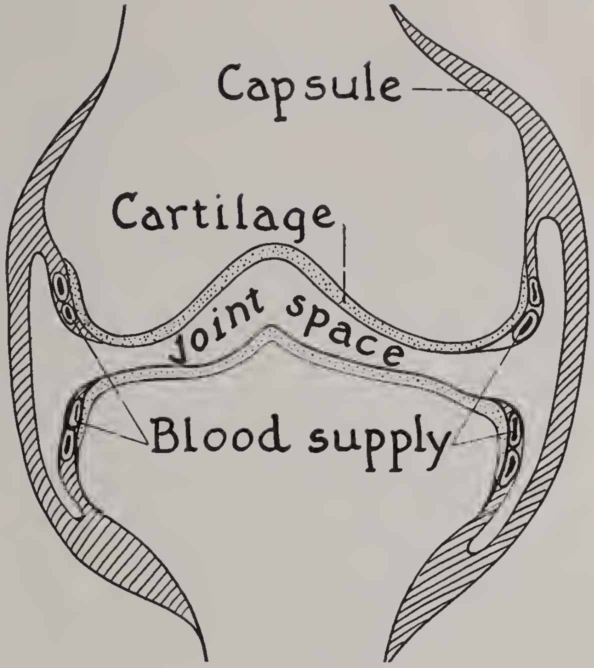

Fig. 2. Normal joint.

factor. A position further down on the pyramid would be occupied by atrophic arthritis, sometimes referred to as rheumatoid or proliferative arthritis. In this disease, we have infection as the principal immediate cause. Undoubtedly, though, other factors are necessary in the production of the syndrome. Not only is the patient's inheritance of importance, but his bodily build, his environment, and his endocrine balance all play roles of importance in the production of the disease. Near the bottom or apex of the pyramid is hypertrophic arthritis, for it is a syndrome in which infection plays a relatively minor part. This form of chronic arthritis is also spoken of as degenerative or osteoarthritis..

Undoubtedly, in addition to inherited constitutional factors, physical wear, environment and trauma are of great importance as predisposing factors. Clinical experience teaches us that infection is frequently the factor causing the worn-out joint to change from one which is clinically unimportant, to one which is acutely painful. By thus evaluating the importance of infection in chronic arthritis in this inverted pyramid, we have a means of estimating the amount of permanent relief which may be secured in any particular case by overcoming either local or systemic infection.

The second concept which I have found to be of value in dealing with chronic arthritis has to do with the joint anatomy and pathology. Hunter[1] was the first to speak of the lining of the joint as synovial membrane. The choice of the term membrane was unfortunate. Embryologically, the structures of the joint have a common origin from undifferentiated mesoderm. Likewise, anatomically, this so-called synovial membrane is not a special structure, but merely the smooth inner surface of the joint capsule. Further, it extends over the cartilage only to the edge of the weight-bearing line (fig. 2). Thus it resembles the better known pleural and peritoneal membranes neither in embryonic origin nor in sac-like structure.

When this inner part of the joint capsule is stripped of the connotation of the word membrane, its behavior is seen not as a peculiar pathologic entity requiring special knowledge, but merely as the behavior of connective tissue throughout the body. Thus in response to a non-pus-forming infection, we find a vascularization and proliferation along the lines of least resistance, mainly into the joint space, over the surface of the joint cartilage from which it has normally been largely worn away. Because the process involves the entire capsule, however, the changes are merely most pronounced in the joint cavity, while swelling of the more external parts of the capsule merely result in giving to the joint its typical fusiform shape (fig. 3). By the action of bacterial lysins, the cartilage beneath this infected growth of connective tissue is dissolved. As healing takes place, the infection subsides, this hyperemic tissue becomes avascular, elastic fibers are laid down, and there results a

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[1] Hunter, W.: "Chronic Arthritis," p. 27, by A. G. T. Fischer. Macmillan Co. New York, 1929.

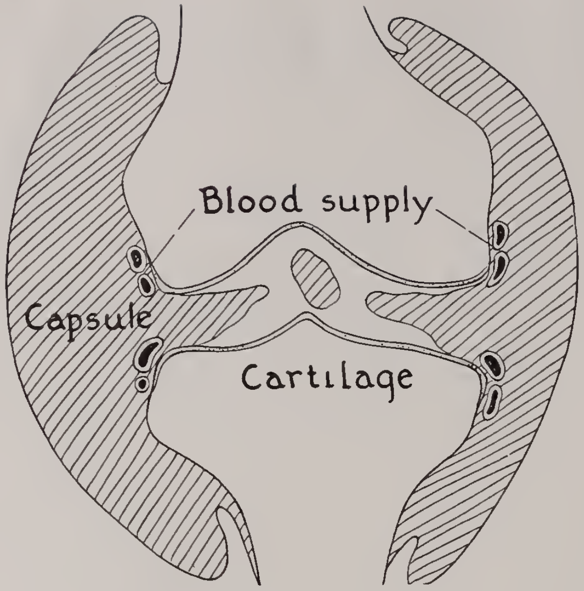

Fig. 3. Atrophic joint (proliferative).

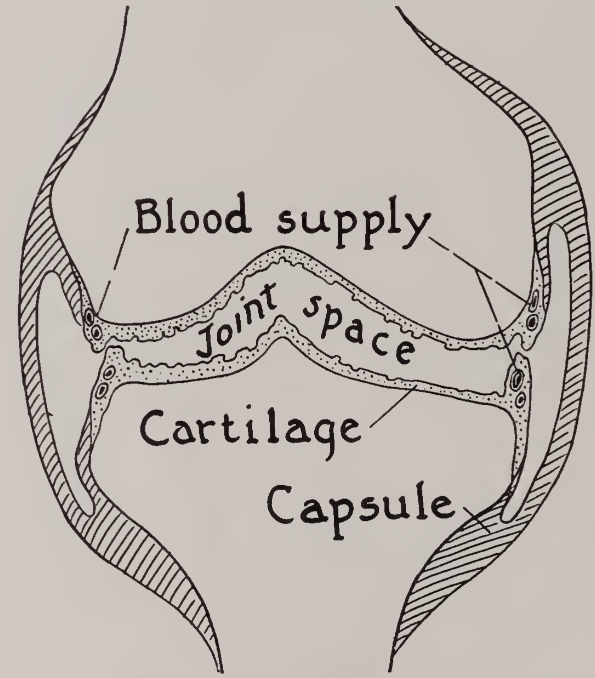

Fig. 4. Hypertrophic joint (degenerative).

typical scar; unfortunately, if this scar is adherent to both surfaces of the joint, there results the ankylosis so typical of atrophic arthritis.

In hypertrophic or degenerative arthritis, the changes are of a different character. In this syndrome the first change occurs in the central cartilagenous areas. There first occurs a striation of the cartilage. These striae gradually deepen, become grooves, and coalesce to form ulcer-like depressions. These are of varying depth, occasionally in advanced cases penetrating to the subchondral bone. The lack of regeneration in this central weight-bearing area is probably due to its poor blood supply. Coincidental with the destruction of the central area, there is a noninflammatory proliferation of connective tissue at the chronocapsular junction where lies the chief vascular supply of the intrinsic joint structures (fig. 4). Whether this proliferation is due to venous stasis per se, or stress and strains upon the periarticular structures, it serves as a rough measure of the central, less visible changes. Whatever the cause, we see villous outgrowths of connective tissue occurring at this point. As these increase in size, there occurs at their base, first, cartilization, and later ossification. This results in the typical marginal spurs of osteoarthritis which occur usually to a degree, paralleling the more central changes.

By keeping this diagram of the importance of infection in mind, and by simultaneously mentally diagramming the pathology present in the individual case, one finds that the large groups of hypertrophic and atrophic arthritis become split into smaller divisions which have a more uniform prognosis and medical treatment (table 1). I shall now briefly outline these groups, beginning with those in which infection is the most pronounced.

Considered thus, the first subdivision of atrophic arthritis will be those cases occurring as the sequel of acute infection elsewhere in the body. Typically, the joint condition occurs from ten days to two weeks following the infection. Clinically, we find it usually limited to the joints of the extremities. It may be migratory in character and does not respond to salicylates as does rheumatic fever. In my experience it is very rare to find such a case which does not recover almost completely in a period of from two to six months. Other than rest and symptomatic treatment, I do not believe any special medication is required. After the disease has become quiescent, the part in which the primary acute infection occurred should be either removed, as in the case of the tonsils, or rendered as healthy as possible as in the case of the urinary tract. Summarizing, one might advise for the acute attack rest and symptomatic treatment, and with healing remove all of the foci to prevent recurrence.

Somewhat similar to these postinfectious joints is bursitis of the shoulder. This should be carefully differentiated from partial or complete rupture of the tendons by means of a definite history of onset after a single unusual strain of motion. Bursitis of the shoulder may occur as acute inflammation or it may come on more insidiously. In a case beginning

	Prognosis	Vaccine	Gold	Sulphur	Protein	Foci Removal	Endocrine	Psychiatric	Diet	Frequency
Postinfection	Good	0	?	0	0	x	0	0	0	6
Bursitis	Good	x	x	0	0	?	0	0	0	5
Classic atrophic	Poor	x	?	0	0	?	0	0	x	5
Symmetric arthritic	Fair	?	x	0	0	0	0	0	x	3
Poker spine	Poor	x	0	0	0	0	?	0	x	1
Sacroiliac	Good	x	0	0	0	x	0	0	0	14
Menopausal	Fair	x	?	?	0	?	x	0	x	12
Radiating spine	Good	?	x	0	x	0	0	0	0	12
Classic hypertrophic	Poor	x	0	x	x	0	0	0	0	15
Morbus coxae senilis	Fair	0	0	?	x	0	0	0	0	3
Visceroptotic	Fair	0	0	0	0	?	?	x	x	7
Posttraumatic	Fair	0	0	0	0	?	0	x	0	4
Atypical										13

Table 1. A schematic table of prognosis and treatment of chronic arthritis

acutely, there is frequently local heat, leucocytosis and fever. It is my experience that such cases do not tend toward complete recovery without active treatment. The acute symptoms will frequently subside but there will remain either chronic pain, loss of motion or both. It is my experience that vaccine or gold sodium thiosulphate, either alone or together, not only shorten the course of this condition, but materially aid in restoration of function and ablation of symptoms. Only after recovery is complete should foci be removed.

Passing now to a form of arthritis in which the infection is of a more primary rather than a metastatic nature in the joint, we have classic atrophic arthritis. This corresponds closely to the picture of atrophic arthritis that is given in textbooks. Here we have a disease of insidious onset, usually beginning in the small joints of either the hands or the feet with early ankylosis of the joint structure and atrophy of the periarticular tissues. This symptom-complex constitutes one of the most difficult of all chronic arthritics to treat. The prognosis should be very guarded. Frequently the most that can be done is an arresting of the progress of the disease. Seldom do we have much restoration of function.

Medically there are several things which should be done: first, the diet should be adjusted so that the habitually anemic, undernourished condition of these patients is corrected; second, the foci of infection should be gradually removed. This removal should be done not with hope of curing the disease, but as a means of helping the patient to gain the best possible physical condition. Vaccines are probably the special drugs of choice. In my hands a greater proportion of cases has been rendered quiescent with vaccine than by any other means. In cases in which the vaccine is not especially efficacious and in which the sedimentation rate remains persistently high, gold may be used to advantage. Rehabilitation of ankylosed joints, after the disease is quiescent, is a matter for the orthopedic surgeon.

The next group of arthritics I have labeled the symmetrical atrophic. These are characterized by the marked fusiform induration which occurs symmetrically, and involves especially the metacarpal joints, the ankles, the wrists, the knees and the elbows. I have seen it occur in women of all ages but have never seen it in men under sixty. The onset of the disease is rapid. There is a striking loss of weight and general malaise. The nutrition suffers greatly and the patient appears toxic. I think further experimental work will show that this type of arthritis is connected with the subclinic scurvy which Rheinhart[2] has been able to produce by vitamin C deficiency. In contrast to the classic atrophic group, these patients do not develop early ankylosis, though the swelling of the joints is more marked than in the classic group. I believe that the diet should be adjusted to a high caloric, high vitamin character, and this with the aid of gold I have found to be in the majority of cases sufficient to reduce the swelling and regain a reasonable amount of function as well as to secure a return to general good health. Vaccines may aid, but I have not been able to demonstrate this clearly.

The last group of atrophic arthritics are the so-called poker-spine or the ankylosing spinal arthritic group. This is the least common of all the atrophic forms and occurs usually in males. It may or may not involve the hip and is characterized by a calcification of the perispinal ligaments and in the hips by an ankylosis. The general condition is frequently poor. Prognosis should be very guarded. Proper orthopedic supervision will prevent deformity in a few cases and I have found vaccines and diet of apparent value in building up the patient's general condition. In spite of marked general improvement and lessened pain, I have not been able to convince myself that in any case the disease has become arrested.

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[2] Rheinhart, J. F.: University of California Medical School. Personal communication.

We will now take up those conditions commonly classified under the general term of hypertrophic arthritis. The first subdivision is that in which infection is the most pronounced, namely the lumbosacroiliac group. As all clinicians are aware, this syndrome frequently dates its onset from a sudden movement or minor strain. The pain may be localized, may radiate to the buttocks or down the sciatic nerves. In my experience a large percentage recover at least temporarily, but I believe that both vaccine and removal of foci will aid materially in the prevention of recurrences.

The next group of hypertrophic arthritis which separates itself from the others is that affecting individuals at or near the menopause and in whom the symptoms are largely limited to the knees or back. Obesity and subjective signs of hypoovarianism are consistently present. The prognosis here is not as good as in the sacroiliac group, but a reasonably large percentage can be made comfortable. In my experience diet to remove obesity, endocrine therapy to remove symptoms of ovarian insufficiency and vaccine to build up the general resistance are the measures of choice. Gold, sulphur and focal infection removal have been of only questionable value.

The next group includes those patients suffering from neuritis. On examination we find that their pain is referred along the course of one or more spinal nerves; that there is hyperesthesia in this area and that the degenerative changes are present in the spinal column from which the affected nerves arise. I have had excellent results in this group of individuals. My best results have been secured by a very weak protein solution, corresponding to the amount of solids in the ordinary arthritic vaccine. I have in several cases used gold with relief of symptoms. Vaccines, while giving good results in some cases, have not given as universal benefit as either gold or protein. I have not seen any permanent effects from the removal of foci.

We come now to that group of degenerative arthritics which corresponds closely to the textbook description of hypertrophic arthritis. Degenerative changes and symptoms are present in multiple joints, especially the knees, and the patients are frequently not in the best of general health. They often appear physically worn out and are habitually attempting to do tasks for which they are unfit. I have had very indifferent results in this group. If sulphur is indicated in any arthritic, it should give the best results in this group. Brilliant results from its use have not been seen in my clinic. On the other hand, some good results have been secured with either very weak protein or with vaccine, but all medical measures leave much to be desired. I have found no particular benefit through the removal of foci or the administration of gold.

We come now to a much smaller, more homogeneous group, the senile hips. Here the pathology present is very extensive and all that can be hoped for is the relief of pain. I have had quite spectacular results with the use of protein solution. Sulphur has given very indifferent results and other materials have apparently failed to do anything.

There is another small group of degenerative arthritics which should be classified together. These are markedly thin, visceroptotic individuals with high strung nervous systems who complain of numerous symptoms. I have found diet and sympathy the medicines of choice in this group. These patients do not do well under vaccine, gold or protein. Endocrine therapy and focal removal may be tried cautiously, but I am sure the results will be more gratifying if greater time and energy are spent on the nutritional and mental well-being of these thin individuals.

The posttraumatic group are those cases whose joint symptoms follow a more or less severe trauma. In my county experience the majority were not connected with compensation. I have found that the least done for these cases in the way of active medicinal therapy the better are the results. They are in need primarily of time to readjust their systems to the injuries which they have received, and any direct arthritic medicine apparently prolongs the time needed for this adjustment.

This classification will take care of some 90 per cent of all arthritics, and as such I have found it very useful. However, may I warn practitioners who treat arthritics that their results will be dependent not only upon the choice of drug but upon their interest in the patient and the patient's interest in securing results over a long period of time. I feel that very definitely some of the poor results from this or that drug should be attributed directly not to the drug but to the lack of interest and understanding of the physician prescribing it and the patient receiving it.

WOUNDS AND THEIR REPAIR

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(*Concluded*)

CAUSES OF INFECTION

1. Extraneous Factors. a. *Infectious material carried into the wound from the exterior by the causative instrument.* The ordinary wound is a good example. The infectious material may be on the instrument, the skin at the site of injury or on the clothing which may be carried into the depths of the wound by the entering instrument.

b. *Accidental contamination from a surgical attendant.* It is not an uncommon experience to find that during the autumn and spring months accidental streptococcus infections may occur in clean surgical wounds. They may occur in groups in the practice of a certain surgical service in a hospital. Meleney[5] has given this condition careful study and has shown that it is essential that both the nose and mouth of every one in the operating room be masked by 4-ply fine mesh gauze. The usual organism encountered in this type of infection is the hemolytic streptococcus found in the nose and throat of some individuals who are apparently well but are carriers.

Meleney traced the source of this infection by culturing the wounds and the nose and throat of the operating room personnel. He found in one instance that three members of the operating team were carriers of hemolytic streptococcus. By agglutination tests he was able to prove that the hemolytic streptococcus isolated from the wound of an infected case was identical with that obtained in cultures from the nose and throat of the instrument nurse but of a different strain from that obtained in cultures from the nose and throat of two doctors. It was following these observations that in the operating rooms of the Presbyterian Hospital in New York complete masking was extended to all persons entering. Meleney states that following this procedure hemolytic streptococcus wound infections were reduced to "casual numbers." In our own institution several such cases occurred before the time Meleney reported his work. Since we have insisted upon complete masking of every one entering the operating room, even though the individual may be in the room for a few minutes only, no such infections have occurred.

The hands of the surgeon may be the source of infection in specific instances. It is extremely difficult to sterilize the skin, due to the fact that organisms become imbedded in the skin follicles, under the nails or in the sweat glands. With perspiration, the bacteria make their appearance on the surface and accumulate in the sweat which collects in the glove. A tear of the glove allows contamination of the wound. Another factor which in my opinion deserves attention is the fact that the sleeves of the operating room gown, which are tucked into the wristlet of the rubber glove, absorb perspiration which collects in the glove or from the surface of the body. In placing the gloved hand into the peritoneal cavity as in doing an exploration, the part of the sleeve which is contaminated will contact the wound. To correct the latter it is important to keep the operating room at a temperature which inhibits excessive perspiration. To reduce the number of pathologic bacteria which may appear in the perspiration of the hands it is important that septic material be not handled by the hands. The surgeon should avoid touching or handling soiled dressings or wounds with the bare hand, for, when pathologic bacteria are once on the surface of the skin of the hands, it is impossible to scrub them away. We instruct our students and internes always to wear rubber gloves when handling infected wounds and to do the dressings with forceps. This should be an infallible rule.

c. *Suture material.* No comment need be made relative to incomplete sterilization of suture material. It is known that catgut is difficult to sterilize and a constant check must be made in order to avoid accidental contamination. Because of the frequency of infection or other complications such as hematomas, many surgeons have substituted fine silk for catgut in ligating bleeding vessels and suturing wounds. Meleney states: "We believe that the superiority of fine silk over catgut is due to the following facts. First, hemostasis is better, for silk knots do not become untied as easily as catgut knots, particularly when the wound surfaces move more or less constantly as in the thyroid operation. Second, the cellular and fluid reaction about silk is minimal, while the reaction about catgut is maximal. Silk is almost inert in the tissues. Catgut is dead tissue which must be digested. Third, the use of silk automatically requires the surgeon to be more gentle with the tissues. His sutures and ligatures are less likely to be pulled tightly enough to strangle tissue. This often happens when catgut is used and increases with the postoperative edema.

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[5] Meleney, F. L. and Stevens, F .A.: Postoperative Hemolytic Streptococcus Wound Infections and their Relation to Hemolytic Streptococcus Carriers among Operating Personnel. Surg., Gynec & Obst., 43:338-342, Sept., 1926.

For these reasons, with a certain inevitable amount of bacterial contamination, infection is more apt to develop in tissue in which catgut has been used than where silk has been employed."

I am in accord with the opinion of Meleney. There is no question in my mind but that catgut, especially the knots of catgut, are a potential danger in every case. When a wound is examined several days after the closure with catgut, it will be noted that there is an accumulation of a liquid about each knot. This is a potent factor in wound infection. Fine silk can be tied with a knot so small as to be almost invisible. It becomes readily encapsulated and the danger of infection is nil.

d. *Instruments.* The usual routine today is adequate heat sterilization of all instruments except knives. It is the custom in many hospitals to place all cutting instruments in some form of antiseptic solution for sterilization. This, in my opinion, is not safe. Cutting instruments should be boiled ten to fifteen minutes to insure sterility.

2. ENDOGENOUS FACTORS. It is entirely possible for septic emboli to be carried from some nidus of infection to a clean wound. In my opinion this process occurs more frequently than is supposed. It has been proved that transitory attacks of bacteremia occur during acute attacks of bacterial diseases. No doubt, the majority of the organisms which enter the blood stream are destroyed. However, should some be carried to a fresh wound, conditions may be such as to allow them to grow and produce a local infection. It is, therefore, unwise to perform an operation of choice during the time an individual has some septic process.

Contamination of wounds from the gastrointestinal tract has been the subject of study for many years. It is known, for instance, that the mouth and esophagus contain septic organisms and that any wound involving these organs will become infected, unless it be a wound of the mucosal side of these structures. It seems to be a paradox that wounds within the mouth heal readily while a wound of the neck which communicates with the mouth will invariably become infected.

The normal stomach contains few pathogenic bacteria. This is explained on the basis that the hydrochloric acid present prevents bacterial growth or so attenuates organisms present that they become virtually harmless. The same applies to the duodenum. On the contrary, a stomach which is the seat of a carcinoma with an anacidity often harbors pathogenic bacteria. It is every surgeon's experience that in the presence of hyperacidity, the stomach and duodenum can be opened and closed with impunity. Even though there may be spillage of contents, no serious infection takes place. On the contrary, in the presence of a carcinoma, spillage of contents may lead to a fatal peritonitis.

The upper intestinal tract contains few pathogenic bacteria. It is only when the terminal ileum is reached, that a perceptible number of the colon group of organisms are present. This, again, coincides with clinical experience, for it is known that spillage from the upper intestinal tract is much less likely to cause trouble than when the contents of the lower ileum escapes into the peritoneal cavity. The colon harbors many virulent organisms and any wound which involves the colon is prone to be followed by a serious infection.

The course of an infected wound will depend upon many factors such as the causative organism, the resistance of the individual, the structures involved, the extent of the wound and the treatment. Time will not permit to enter into a discussion of this phase of the problem. However, I should like to call attention to one specific form of infection which is rarely recognized and for this reason usually runs a long and frequently a fatal course. A wound which may be trivial or one made in the course of a surgical operation begins to show signs of nonhealing; the skin edges become undermined and the skin shows evidence of liquefaction. There is no evidence of gangrene, yet due to the undermining, sinus tracts develop. The wound widens and pale granulations appear, the skin margins rolling in. After weeks or months, the ulcer may spread for considerable distances to form pockets under the fascia or in muscles. For a period of time new epithelium may grow over portions of the surface of the ulcer, but in a few days this new formed epithelium melts away. Fever is common during the course of the process and the patient often becomes emaciated. The process may last for months or years, some patients spontaneously recovering, others succumbing. The process has not yielded to any forms of treatment used and excision is often followed by an acute exacerbation with high fever.

Meleney[6] has studied this condition and it is following his observations in finding an anaerobic hemolytic streptococcus which he calls "microaerophilic hemolytic streptococcus" and his experiments with the use of zinc peroxide that cures have been obtained. It has been demonstrated that, if a suspension of zinc peroxide can be brought into intimate contact continuously with all portions of the ulcer, healing will take place. Sinuses must be laid open and abscesses drained so as to prevent pocketing and to make all areas infected available to medication with the zinc peroxide. Skin grafting may aid in the healing of the defect after the infection has been eradicated.

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[6] Meleney, F. L.: Zinc Peroxide in Treatment of Microaerophilic and Anaerobic Infections with Special Reference to a Group of Chronic, Ulcerative, Burrowing, Nongangrenous Lesions of Abdominal Wall Apparently due to a Microaerophilic Hemolytic Streptococcus. Ann. Surg., 101:997-1011, April, 1935; Infection in Clean Operative Wounds; Nine Year Study. Surg., Gynec. & Obst., 60:264-276, Feb. (No. 2A), 1935.

TREATMENT OF INFECTED WOUNDS

It has been stated earlier in this paper that all lacerated and contaminated wounds should be excised and closed by primary suture. This can be done in the event the wound comes under the care of the surgeon within a specified time after the injury. Experiments upon animals have proved that the time limit is approximately six hours, but in some instances a primary closure can be done after this time has elapsed. It is unwise, even dangerous to try to excise an infected wound, one in which the organisms have already invaded the deeper ones of the wound.

Wounds, after the test period of from six to ten hours, may be cultured in order to determine the type of bacterial contamination. These wound surfaces are usually covered by necrotic membrane or show evidence of a glary exudate. If the wound is superficial, the surrounding surface should be cleansed, care being taken not to introduce any further infection into the wound, and hot boric acid compresses applied. Within a few days the slough is extruded and a clean granulating surface is present. If the wound is of sufficient size to warrant suture, cultures will assist in determining the time at which closure may be safely done.

Extensively lacerated and deep wounds offer quite a problem as to the best procedure to follow after infection is once present. There is always the question of hemorrhage, foreign bodies and injuries to nerves and tendons. No attempt should be made to repair essential structures such as nerves and tendons at this time, but suitable splints should be applied to prevent contractures. It has been my policy to adequately drain, insert Dakin tubes into the recess of the wound and introduce Dakin's solution every two hours during the entire twenty-four hours of the day. If the wound is in the immediate vicinity of large blood vessels, every care should be instituted to provide means to control bleeding, should it occur. We have placed a constricture about an extremity so that in the event of a rupture of the artery, the constrictor could be tightened by the patient himself or by some lay person near at hand.

It should be a rule that no drainage tube should be placed in an infected wound in the vicinity of a large blood vessel. The compression caused by the tube or drain in the presence of infection will erode a vessel and may bring about a fatal hemorrhage. With correct Dakinization, the necrotic tissue will be extruded, infection will be brought under control and evidence of repair will become manifest within a few days. The crux of the treatment is placement of the tubes so that the Dakin's solution will be delivered into the depths of the wound and all recesses will be bathed by fresh solution at frequent intervals.

In the event that a foreign body is concealed in the wound it may become necessary to remove this after the acute infection has subsided. When the slough has been separated and the wound cultures show a minimum of organisms, a secondary closure may be attempted. The presence of the streptococcus should always deter one from a closure. Instead of suturing the wound the edges may be approximated by strapping, allowing sufficient gaping to provide for drainage or further instillation of Dakin's solution. It is surprising how a large infected wound can be closed in this manner.

During the local treatment of large infected wounds, especially when the patient is toxic, the nutritional status should be considered. There seems to be no question but that the well nourished individual will respond better than the one who is undernourished. Fluid intake should be encouraged, giving freely of orange juice. The food should be easily digestible, care being taken to maintain the protein balance, also that there is a proper vitamin intake. The nutritional status becomes a vital factor in cases of long continued infections with sepsis. These individuals lose their appetites and refuse food; therefore, unless some special attention be directed toward adequate nourishment, malnutrition and avitaminosis further complicate the process.

BURNS

A burn is a wound produced by thermal means. It differs in no way from an ordinary wound unless perhaps in the extensive burns there is or may be considerable destruction of tissue which must be detruded before healing can take place. Burns may be extensive so that it becomes necessary to consider the loss of a large amount of an essential organ, the skin. Moreover, the delayed shock which may occur must be anticipated. The process of healing is identical with that of wounds.

From the viewpoint of wound discussion, it will not be necessary to elaborate upon the various types of burns, such as may be produced by electricity, boiling water and the like. For an intelligent understanding of the treatment, however, cognizance must be taken of the extent and location of the lesion and the time at which it comes to the attention of the physician.

In burns aseptic care is the crux of the management. If infection can be prevented, the wound produced by thermal means will heal promptly with a minimum loss of tissue, beside that destroyed by the heat. On the other hand, when infection takes place, much tissue, which is partly devitalized and has the possibility of recovery, will become gangrenous and slough away. The surface of a burn forms an ideal site for bacterial invasion; there is warmth, moisture and a pabulum consisting of serum and devitalized tissue. In the more extensive burns much tissue may be destroyed, the slough again being the site of predilection for the invasion of bacteria, especially the anaerobes such as the gas producing organisms.

In the treatment of burns two major factors are concerned: the burn itself and the general condition of the patient. It is not uncommon to have an individual who has suffered a severe burn develop a severe degree of shock some time after the occurrence of the burn, especially at the time treatment is being given or after exposure or attempts at transportation. The general condition of the patient must always be the guide to treatment, inasmuch as the ultimate result desired is a live patient with a healed wound and as little deformity as possible. When shock is present or impending, the burned parts should be wrapped in a sterile towel or dressing and treatment for shock instituted. For the latter I believe there is nothing more beneficial than sufficient morphine to control the pain and body heat. The introduction of physiologic salt solution may aid in the treatment.

Our policy in the treatment of burns is to give enough morphine to control the pain, or if the burn is so extensive as to require considerable cleansing, a gas anesthetic is administered. The burned surface and the surrounding tissues are carefully washed with soap and water. In case foreign matter is imbedded in the burned surface, a soft brush is used to scrub away this material. Grease and other fats may be removed with benzene. Large blisters are opened and the lifted skin cut away. Small blisters can be left alone.

When there has been no deep structure, such as muscle and the like, destroyed, the burned area is sprayed with a five per cent solution of tannic acid in water, using an ordinary atomizer. The part is incorporated in a loose sterile dressing such as a towel to prevent the parts from coming in contact with bed clothing. The towel can be pinned loosely over the wound so that it can be readily opened for the spraying. Often the wound is allowed to be exposed to the air during the time of the spraying. The spraying is done every fifteen or twenty minutes and to hasten drying of the tannic acid solution a lamp can be placed over the wound; even an electric fan will facilitate drying. As soon as a good dry film forms over the burned area the part is incorporated in a loose dressing and kept quiet. In many superficial burns, one course of spraying will be sufficient.

The film will remain in contact with the burned surface, pain will disappear and the patient will be comfortable. After a period of from four to seven days, sometimes longer, the film will separate, leaving a well healed surface. At times a part of the film will be elevated by secretions or it will break away. In such a case, the surface exposed should be cleansed with sterile boric solution, dried and again sprayed with the tannic acid solution. The tannic acid film is an impervious seal for the wound which, if clean and not infected, will heal kindly.

When the burn is extensive, especially when deep structures have been destroyed, hot boric dressings should be applied after the wound has been cleansed. I believe it is unwise to attempt to remove or excise destroyed tissue immediately after the burn. There may be exceptions to this, in those cases in which there is extensive charring of tissue, the latter being very evident. However, when it is done early, only that part which is obviously destroyed should be removed. Hot moist dressings will facilitate tissue reaction so that the dead tissue will become separated from the living and extruded. It should again be stressed that aseptic care is absolutely essential in this type of burn, since any secondary infection will invariably lead to extensive necrosis and sepsis. These deep burns must be treated much as a case of gangrene. Eventually necrotic tissue can be removed, the defect will granulate and, if the skin loss is not too great, epithelialization will close the surface. Skin grafting may hasten the closure and prevent contractures. I am convinced that the majority of bad results obtained in the treatment of burns are due to lack of aseptic care.

TREATMENT OF EMPYEMA OF CHILDREN BY ASPIRATION*

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There are several ways of treating empyema, each with its own advocates and like many other procedures in medicine there is no particular method that is entirely satisfactory. Empyema was recognized by the Greeks several hundred years before Christ. Hippocrates realized the necessity of drainage, but even now, after 2500 years have elapsed, a great deal of controversy exists regarding the best method of treatment.

An early advocate of treatment by aspiration was Roe[1] of London as early as 1844. He reported nine cases with a mortality of 11 per cent. Earlier cases had been reported in the English Literature. Bowditch[2] first introduced it in America. In 1910 Holt[3] reported 139 cases of empyema treated by aspiration. His results, however, were not satisfactory; twenty-five recovered, thirteen died and one hundred and one had subsequent operations.

In 1928 McEnery,[4] at the suggestion of Brennemann, started treating cases of empyema by aspiration. Danna[5] had been treating cases by aspiration and air replacement. The accompanying table gives a review of the treatment in recent years.

There have been thirty-two cases of empyema in Doernbecher Hospital since July 1, 1935. This does not include four cases that had been operated on prior to July 1 who were still in the hospital; one patient who had a rib resection elsewhere; two cases were taken out against advice; cases that absorbed fluid without therapy, and five cases still being aspirated.

There were twenty-one boys and eleven girls. Their ages ran from eight months to thirteen years with an average age of five years. Cultures of the empyemic fluid revealed such a high number of streptococci and such a low number of pneumococci that we feel there must be some error and so the organisms will be omitted from this report. Instead we are classifying the cases as synpneumonic and metapneumonic. Metapneumonic or primary empyema follows the pneumonia by a few days, the temperature usually having fallen, followed by a secondary rise. The fluid is usually purulent when the diagnosis is made and the organisms are usually pneumococci. In synpneumonic or secondary empyema the temperature doesn't drop, and the fluid is usually clear or hemorrhagic early. The etiology is usually a streptococcus. Empyemas following scarlet fever, measles, wounds, etc. are of this class. There were twenty-one cases of metapneumonic empyema and eleven synpneumonic. Twenty-three or 71.9 per cent have been treated by aspiration alone.

Author	*No. Cases*	*Cured Per Cent*	*Died Per Cent*	*Ave. No. Aspirations*
1. Brennemann and McEnery[6]	94	72.0	12.0	4
2. Worringer[7]	36	66.7	16.7	....
3. Ochsner and Gage[8]	12	33.3	33.3	....
4. Ochsner and Gage (air replacement)	29	34.4	10.3	4
5. Danna[9]	35	94.3	5.7	4
6. Strong[10]	60	86.7	13.3	....
7. Roberts[11]	30	92.5	7.5	7
8. Bohrer[12]	16	69.0	31.0	....
9. Moore[13]	9	66.6	11.1	6.5
10. Bloch and Parrish[14]	14	92.9	7.1	5.75
11. Bilderback and Goodnight	32	68.8	4.3**	12

**Mortality including operative cases 6.2.

The average number of aspirations per patient has been twelve. One patient received only one aspiration and two had thirty. The patients with a large number of thoracenteses will be discussed later. This average includes occasional dry taps that do occur. The average number of thoracenteses necessary for the patient to become and stay afebrile was eight. The average number of days for the patient to become and stay afebrile was twenty. It may be mentioned that several patients became afebrile, and later because of inability to aspirate a small amount of fluid they became febrile again. One patient had twelve aspirations after having been afebrile for a week.

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* From the Department of Pediatrics, University of Oregon Medical School.

* Read before a meeting of Multnomah County Medical Society, Portland, Ore., May 6, 1936.

[1] Roe, H.: Quoted by Graham, E. A., Abts. Pediatrics, Vol. 4, p. 103. W. B. Saunders Co., Philadelphia, 1924.

[2] Bowditch, H.: ibid, p. 104.

[3] Holt, L. E.: ibid, p. 104.

[4] McEnery, E. T. and Brennemann, J.: Aspirations of Empyema of Children. J.A.M.A. 93:362-367, Aug. 3, 1929.

[5] Danna, J. A.: Treatment of Empyema by Aspiration and Air Replacement Without Drainage. Internat. J. Med. & Surg. 43:128-133, March, 1930.

[6] McEnery, E. T. and Brennemann, J.: Aspiration in Treatment of Empyema in Children; With Critical Evaluation Based on 94 Cases. Am. J. Dis. Child. 44:742-753, Oct., 1932.

[7] Worringer, P.: Quoted by Brennemann (4) and Ferri (17).

[8] Ochsner, E. W. A. and Gage, I. M.: Acute Empyema Thoracis; Statistical Study With Comparison of White and Colored Races; Ann. Surg. 94:25-37, July, 1931.

[9] Danna, J. A.: Treatment of Empyema by Aspiration and Air Replacement Without Drainage. J.A.M.A. 96:1453-1456, May 2, 1931.

[10] Strong, R. A.: Aspiration Treatment of Empyema in Children. J. Iowa M. Soc. 25:334-337, July, 1935.

[11] Roberts, R. R.: Treatment of Empyema by Aspiration and Air Replacement. New Orleans M. & S. J. 85:28-31, July, 1932.

[12] Bohrer, J. V.: Acute Empyema in Children. Ann. Surg. 100:113-124, July, 1934.

[13] Moore, W. R.: Treatment of Empyema in Small Children. South M. J.. 25:574-580, June, 1932.

[14] Bloch, H. and Parrish, P.: Acute Pyothorax: Treatment of Children and Infants by Aspiration of Pus and Air Replacement. Am. J. Dis. Child. 46:518-521, Sept., 1933.

The average number of days in the hospital after the last thoracentesis was sixteen. Occasionally some difficulty was experienced in getting the patients out of the hospital, as in one case where the family had measles and a home could not be found for the child.

The average hospital stay was forty-two days from the time diagnosis was made. This could have been shortened considerably by less observation. There was one death in the twenty-three completed cases, a mortality rate of 4.3 per cent. This patient died of a caseous tuberculosis and a tuberculous meningitis. His empyema never cleared up and his temperature never reached normal in spite of thirty aspirations. The organism on culture was hemolytic streptococcus. One other patient had tuberculosis by roentgenogram and he had twenty-four aspirations. One girl with a pericarditis had thirty aspirations. If these last two patients are discarded, the average number of thoracenteses is ten. One patient when she was almost well developed a bronchopleural fistula and coughed up the remainder of her empyema. She is perfectly well. An intercostal nerve was apparently injured in one patient, and she had abdominal pain for a day. As the aspiration was done high enough, we felt certain the diaphragm was not injured. During a thoracentesis this same patient suddenly stiffened out and then relaxed. She refused to talk or eat for a day. Physical examination at this time was negative. She recovered fully. Block and Parrish reported a similar case of pain in the abdomen. Only one patient has been back so far since discharge. On roentgen examination he presented what appeared to be a pericardial effusion with very little in the way of physical findings. His temperature rapidly fell to normal and after one week his heart was normal by roentgenogram.

Nine patients have had closed drainage. They varied in age from nine months to eight years. There were six boys and three girls. All but two of these were of the metapneumonic variety.

The average number of aspirations before surgery was five. The average number of days after the diagnosis was made before surgery was twelve. The reasons for surgery were as follows: One private case in which the visitant wished closed drainage. One child had convulsions and it was thought closed drainage would be of benefit. A tube was also placed in her twin brother at the same time. One child developed a bronchopleural fistula and marked subcutaneous emphysema of her chest and neck and up into her cheek, and a tube was inserted through a trocar to prevent further subcutaneous emphysema. She later came to surgery. White[15] reported a similar case treated with aspiration.

One child had a marked effusion and displacement of his heart on admission. The pus was thick and hard to aspirate so closed drainage was performed. He still did not drain well as his empyema was loculated, so further aspirations were necessary. This patient died of a pericarditis. The other four cases were operated on because of thick pus and insufficient drainage. In view of our latter experience we believe most of these could have been carried on with further aspirations, especially as most of them were of the metapneumonic variety. The average number of days until these patients were afebrile was twenty-three and the average hospital stay was fifty-three. One patient was discharged with a short tube and this was removed too early, so it was necessary to replace it.

Twenty-one of the thirty-two cases have been admitted in the last four months. It is interesting to note that nineteen of these have been treated with repeated aspirations, or 90.4 per cent in comparison with 42.5 per cent for the first six months. We believe this difference is due to our knowledge of treatment.

TECHNIC

We have done our thoracenteses in the sitting position. A little codeine given before aspiration often helps in keeping the child quiet. Infiltration with 1 per cent novocaine is then done. A fine 26-gauge needle is used for infiltrating the deeper structures including the pleura. When the pleura is penetrated there is a definite "give" to the needle. Aspiration is then done to make sure the needle is in the empyemic cavity. A 13-gauge needle with a side opening connected with a rubber tube clamped with a hemostat is then introduced. A three-way valve may be used instead if desired, but has no flexibility if the patient moves. A 50 cc. syringe is connected to the tube, the hemostat opened and 50 cc. pus withdrawn. This is replaced with 40 cc. of air. The process is repeated until air is obtained in the syringe. The cavity is then irrigated with 1-3300 azochloramid solution until the return is clear.

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[15] White, A. W.: Some Observations on Treatment of Empyema of Children by Aspiration. J. Florida M. A. 18: 412-415, March, 1932.

Brennemann, Danna, Strong, White and others recommend doing thoracentesis from every two days to a week. It has been our experience that this is not often enough. As long as the patient is febrile and there is fluid present on physical examination or fluoroscopy, we feel that he should be aspirated daily until afebrile. We have had many instances where aspirations every two to three days had no effect on the temperature or fluid for one to two weeks, and then have the temperature fall rapidly to normal after thoracentesis on two to three successive days. Thoracenteses are then done as necessary according to the child's condition (fever, pulse, appetite and general condition) or according to the fluoroscopic findings.

We cannot agree with Danna that it is necessary to completely empty the cavity. Although it may be necessary to remove fluid for a short time after the patient is afebrile, suddenly the fluid will not reaccumulate and the little remaining fluid will rapidly absorb. This has been true in practically every case. Almost every severe case of pneumonia probably has a small amount of fluid in the pleural cavity. Many observers cite instances of aspirating 10-15 cc. and then have the patients get well on one aspiration. We have had several patients with roentgen findings of a small empyema who have gotten well without aspiration. These patients' temperatures had rapidly fallen to normal and so they were merely observed. They were not included in our series as empyemas. Only one patient in our series yielded less than 200 cc. on the initial aspiration. Perhaps this is one factor why our average number of thoracenteses is higher than some of the other observers.

We feel that replacement of air is of importance for several reasons. In replacing the fluid with air the patient is made more comfortable without any danger of a large mediastinal shift. Replacement with air undoubtedly helps to prevent adhesions, as during the acute inflammatory process the surfaces of the pleura are held apart. There is less damage to the pleura and there is less danger of puncturing the lung. More complete emptying of the cavity is possible, as the pleura does not come in contact with the needle. For the same reason there is less likely to be any pleural irritation or shock. There is immobilization and rest of the diseased lung which aids in healing the focus of infection, without which healing will not take place no matter what the treatment. The air is slowly absorbed, restoring the negative pressure. When the air is absorbed the cavity is obliterated.

One of the advantages of replacement with air is well illustrated in the following case. This patient developed a pericarditis and so we naturally wished to clear up the empyema as rapidly as possible, but the pus was thick with numerous clots of fibrin. With the patient lying down, the needle was introduced into the pneumothorax, air was removed and replaced with azochloramid until fluid was obtained. The patient was then placed in the sitting position and fluid was withdrawn and replaced with air. After air was obtained the patient was irrigated until the solution was clear. Although we were not decreasing the amount of fluid in the chest, we were replacing the pus with our irrigating solution. The pus became thinner and we were able to withdraw it and her empyema cleared up.

One of the most frequently voiced objections to multiple aspirations is that the pus becomes too thick. Brennemann, Strong and others have reported that if left alone the pus will become thinner in time, due to a process of digestion by approtolytic enzyme. We have no argument with this statement but believe that the thick pus can be largely circumvented by irrigations. For this purpose we have been using azochloramid, N-N′ dichlorazodicarbonamidine 1-3300 or a 1 per cent Dakin's solution. Schmelkes and Horning[16] have shown that azochloramid possesses the property of killing microorganisms in the presence of organic matter such as serum, tissues and body fluid. In this respect it excels all other chlorine compounds. Only actively reducing organic matter such as hemoglobin is an exception. Like other chlorine compounds azochloramid shows very little specific action and its solutions can be used efficiently for bactericidal purposes on various kinds of microorganisms.

Sodium taurocholate and optochine hydrochloride[17] have been injected in cases of pneumococcic empyema due to their action on pneumococci. The objections to their use are that the cavity must be completely drained before the injection or there is too marked dilution, and the results are no better than those obtained by observers who have not used them. There have been reports of cases treated with gentian violet and other antiseptics.

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[16] Schmelke, F. C. and Horning, E. S.: Bacteriocidal Action of Azochloramid. J. Bact. 29:323-331, March, 1935.

[17] Ferri, U.: Cure of Pleural Empyema in Infancy. Internat. M. Digest. 19:178-180, Sept., 1931.

We agree with Brennemann and others that bronchopleural fistula is not a serious complication in treatment with multiple aspirations and may even be of definite benefit. We have not seen any cases of marked local cellulitis. White states that he does not believe blood tinged pus on aspiration to be of great significance and this has also been our experience. Boher believes a brain abscess may occur, following an exploratory aspiration when blood is obtained. He cites a case, although he admits he has no proof except that brain abscesses often follow bronchiectasis with blood tinged sputum. No blood cultures were reported in his case.

Multiple fluid levels are not necessarily a contraindication to treatment with aspirations. Many times these fluid levels are found to communicate, especially if the position of the patient is changed, or if he gives a slight cough. Occasionally it is necessary to aspirate at different levels.

Pleural shock is not likely to occur, if all the deep structures including the pleura are infiltrated prior to the puncture.

Statistics concerning the treatment of empyema, no matter what the method, are dependent on several factors. The mortality rate of empyema is directly proportionate to the mortality rate of the original disease. In a year when the death rate in pneumonias is high, the death rate of empyemas is correspondingly high. This also holds true for the different seasons. Graham[18] did not have a single death following operation for empyema in 1925, reporting fifteen children. In 1926 with seventeen children, his mortality was 23.5 per cent. The type of organism present is also of great importance. Staphylococci and streptococci have a much higher mortality rate than pneumococci. Brennemann's mortality rate was:

	Per Cent
Pneumonococcus	7.5
Streptococcus hemolyticus	28.0
Streptococcus viridans	33.0
Staphylococcus	44.0

The age of the patient must next be considered. The mortality of empyema in infants, particularly during the first few months, has always been very high, 40-50 per cent. A few years ago it was practically 100 per cent in hospitals. Dissimilarity of cases must be considered. Some observers include trauma and other causes of empyema, while some are dealing entirely with empyema following pneumonia. Probably the greatest factors of all are the associated complications and nonempyemic causes of death. Graham and Borek state that patients rarely if ever die from empyema itself. Other things to be considered are coincidental luck, the individual patient and the climate.

The main objects of treatment in empyema, according to Mason,[19] are (1) reasonable certainty of cure, (2) reduction of mortality, (3) shorter convalescence, (4) we might add comfort of the patient. Ochsner and Gage state that the treatment of empyema should accomplish (1) relief of toxemia and increased intrathoracic pressure, (2) evacuation of intrapleural fluid, (3) reestablishment of normal lung function by causing reexpansion, (4) prevention of the condition from becoming chronic.

It is a well known fact that the surgical treatment of empyema per se is not an emergency as was well brought out in the world war. This is particularly true in synpneumonic empyema. It is essential to wait until the mediastinum is fixed. The optimum time is fifteen to twenty-one days.

Aspiration plays an important part in the surgical treatment of empyema. Diagnostic puncture should always be made to learn the type of fluid and organisms. Aspiration is the method of choice to relieve pressure and toxemia without shock and to get patients in good condition for surgery. A small percentage of the patients are cured before surgery.

The proponents of multiple aspirations bring out the following points:

1. There is relief from toxemia and pressure.
2. There is less chance of spreading infection.
3. Infection is less likely to be introduced from the outside.
4. There are fewer adhesions formed.
5. Multiple aspirations can be used where other methods fail or even in conjunction with other methods.
6. There are no operation, no mussy dressings, no tubes to be pulled out and no complicated apparatus to get out of order.
7. There is less danger of deformity or a chronic draining sinus.
8. There is less probability of chronic empyema. When the air is absorbed the cavity is obliterated.
9. There is less trauma to the lung.
10. Under proper precautions the mortality is low.
11. Multiple aspirations are especially satisfac-

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[18] Graham, E. A. and Berck, M.: Principles versus Details in Treatment of Acute Empyema. Ann. Surg. 98: 520-527, Oct., 1933.

[19] Mason, J. M.: Acute Empyema in Children, J.A.M.A. 105:1114-1118, Oct. 5, 1935.

tory in tuberculous empyemas and in small children.

12. May be used as preliminary to other methods of treatment.

The statistical comparison of open drainage, closed drainage and multiple aspirations is very difficult. Bearing in mind the factors mentioned above, about equal results have been obtained by all three methods, or four if air replacement is considered separately. We do not advocate multiple aspirations with air replacement as a cure-all. We believe that under certain conditions it should be tried until further work has proved it the method of choice or not. We do not feel that there is any contraindication to it early as surgery can be performed at anytime with good results. It takes a great deal of work and the patients must be followed very closely. Often conditions arise that are very puzzling and may be of serious importance. Certainly, if multiple aspirations are to be carried out, ample provision should be made to combat any emergency that might arise.

SUMMARY

1. The treatment of thirty-two consecutive cases of empyema over a ten-month period is described with a total mortality of 6.2 per cent.

2. Seventy-one and nine-tenths per cent were treated with multiple aspirations and air replacement; 95.7 per cent of these were cured and 4.3 per cent died.

3. Twenty-eight and one-tenth per cent had closed drainage after a trial of aspiration; 89.9 per cent of these recovered and 11.1 per cent died.

4. Of the twenty-one cases seen during the last four of the ten-month period 90.4 per cent were treated with multiple aspirations alone.

5. The average number of thoracenteses was twelve and the average hospital stay forty-two days.

We realize this series is not large enough and has not been carried on long enough to be of great value in statistical studies, but feel that our results warrant further study.

ALLERGY AS THE CAUSE OF FREQUENT COLDS AND CHRONIC COUGHS IN CHILDREN*

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The ingestion of foods and the inhalation of certain forms of dust, animal dander and plant pollen may cause frequent colds and chronic coughs in susceptible individuals. This is in direct contrast to similar symptoms that are caused by infection and bacteria. Frequent colds may be interpreted as perennial or seasonal hay fever, the chronic persistent cough of this particular type as a preasthmatic symptom. That these diseases are due to sensitization or allergy, rather than germs, has been mentioned by many investigators in the past decade. Piness and Miller[1] referred to these symptoms in 1925. The many and varied symptoms affecting practically every organ in the body make it mandatory that every pediatrician or physician treating children acquaint himself with the fundamentals of the subject of allergy.

The early recognition of the allergic state in childhood, with proper diagnosis and adequate treatment, may prove to be the chief factor in the prevention of asthma and other major allergic disasters. It is necessary for the pediatrician to interpret and properly treat the first allergic manifestation. In this manner he may plan the necessary prophylactic measures for the child's future.

DIAGNOSIS

The diagnosis of these cases is just as definite as that of many other commonly recognized diseases. Certain criteria are present in practically all of these patients. The allergic history is of paramount importance.[2]

1. The family history of allergy may be obtained by careful questioning in more than seventy-five per cent of the cases. The examiner may find it necessary to use many more direct questions than are commonly needed in obtaining the average history. Chronic sinus infections or nasal catarrh, migraine type headaches, vague gastrointestinal symptoms, colitis, canker sores, angioneurotic edema or cyclic vomiting (acidosis) as well as the better understood allergic symptoms such as hay fever, asth-

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*Read before the Section on Pediatrics, Annual Meeting American Medical Association, Kansas City, Mo., May 16, 1936.

[1] Piness, G. and Miller, H.: Allergic Manifestations in Infancy and Childhood. Arch. Pediat., 42:557-562, Sept., 1925.

[2] Rackemann, F. M.: History Taking in Allergic Diseases. J. A. M. A., 106:976-979, March 21, 1936.

ma, eczema and urticaria are usually present in the direct family history.

2. Previous allergic manifestations are frequently noted in the patient's own history. I have found in a study of several hundred infants, from birth to five years of age, that 78 per cent of the allergic children showed definite symptoms of sensitization before they were four months of age. These manifestations were, in the order of their frequency, an-allergic rash (eczema), frequent vomiting (pylorospasm) and gastrointestinal upsets such as severe colic, diarrhea or constipation. Less frequently sneezing, urticaria and wheezing were present. At times certain foods will cause poisoning. The infant or child often instinctively takes a dislike to these foods.

3. A present history of definite allergy, such as frequent nasal colds, characterized by a "stuffy" nose which is practically always worse in the morning on arising but improves within the next few hours, is pathognomonic of an allergic vasomotor rhinitis (perennial hay fever, chronic sinusitis, chronic catarrh). This symptom is so constant in the history of a large majority of these children that a detailed discussion will be presented. A chronic cough, occurring usually during the night or on arising, with no demonstrable physical findings, is another outstanding symptom. Other allergy may be present in the same patient.

The children presenting the symptoms of frequent colds and chronic coughs have usually visited many physicians. Nevertheless, the true condition is probably overlooked more often than any other common present day disease. These patients have received many types of treatment in an effort to relieve the persistent symptoms. Their history usually states they have had tonsil and adenoid removal one or more times, "cold shots," vitamin D products, light treatments, sinus treatments, or have been sent to a warmer climate for the winter, all with no relief. In fact, they are usually worse. This history should immediately put the physician on his guard to make him think in terms of allergy.

SYMPTOMS OF THE ALLERGIC COLD

The patient has a cold "all the time." He no sooner recovers from one than he develops another. The onset and termination of symptoms may be abrupt, lasting a few hours to days. His nose always bothers him. During the day he feels better than at any other time, although his nose may be congested at intervals. He frequently rubs his nose because it itches. The manner in which he does this is quite characteristic. The child rubs his nose with his fingers, moving vertically from his forehead to his lip, whereas in the common infectious cold he will usually rub his nose from side to side, across his upper lip. Sniffling and a hacking, scraping dry cough to clear the nose and throat are present as a result of mucus secreted. This is more noticeable after arising. The one symptom that is always present is that the nose is more congested on arising than at any other time. The older children will state that their noses are clear until bedtime.

Soon after lying in bed, one or both nostrils may become congested, often remaining so throughout the night. As a result, mouth breathing, snoring and heavy breathing often are present. The typical "adenoid facies" is usually noticeable. Bowen[3] has described malformations of the jaws and teeth as a result of nasal allergy. Sneezing, appearing in paroxysms, usually in the morning, may occur, although this is less common in children than in adults. Blowing the nose is frequent, with very little discharge, which when present is usually watery or of a thin mucoid type. The nose and throat symptoms are always exaggerated during an acute infection. Fever is seldom present. On direct questioning the older child may state that his nose is not "stuffy" because he has become so accustomed to this chronic condition that he believes it to be the normal state. Having him blow each nostril separately will reveal some obstruction to normal breathing.

The constitutional symptoms in children old enough to describe them are primarily a continued tired feeling and "loss of pep." Headaches of the frontal or occipital type, often unilateral, may be associated with nasal congestion. A "bilious" stomach is a common complaint. Irritability, nervousness, anorexia, impaired hearing, poor school work and an antisocial attitude are frequent complaints. These symptoms may be seasonal. Pollen hay fever may be so mild in children that the actual cause of the nasal symptoms may be overlooked. "Summer colds" of the persistent, seasonal type are usually hay fever. Mothers complain that the child has "adenoids," that his nose is congested and he breathes heavily at night. Sneezing, eye symptoms, cough, and malaise are frequently absent. The diagnosis of hay fever may readily be confirmed by skin tests. Seasonal colds, simulating pollen hay fever, may be due to foods that are present only during certain seasons. The writer has hay fever from cantaloupe. This is a more common symptom than we suspect.

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[3] Bowen, R. and Balyeat, R. M.: Facial and Dental Deformities Due to Perennial Nasal Allergy in Childhood. South. M. J., 27:933-938, Nov., 1934.

Chronic coughs which mothers often refer to as chronic bronchitis are frequently preasthmatic manifestations. The cough is more pronounced in the morning on arising. It may wake the patient in the early hours or annoy him as soon as he retires. It is usually a paroxysmal, hard, dry cough, often similar to whooping cough. It may be a series of short, hacking coughs lasting for one or two hours in an effort to relieve a tickling sensation in the lower throat. Coughing is less frequent during the day. Prolonged laughing or excessive mental and physical strain may produce spells. Nasal congestion is frequently associated with the above. These symptoms are usually worse in the winter with a sudden change in the weather, or preceding a storm or rain.

The diagnosis of asthma in the anteparoxysmal state is justifiable in children in whom there are frequent colds and bronchitis or chronic coughs which do not run a typical course or yield to the ordinary therapeutic measures. These symptoms may often antedate the initial asthmatic wheeze by years.

There is some controversy as to the reason for an exaggeration of nasal congestion and cough in the early morning hours. It seems reasonable to assume that it is due to the continuous irritation of the nasal and tracheal mucosa from inhalation of the house dust of the patient's bedroom. Other allergic symptoms such as hives, asthma, eczema or pollinosis may be present and aid in the diagnosis.

PHYSICAL FINDINGS IN THE ALLERGIC NOSE

Physical examination usually reveals a thin, slender child of the adenoid facies or mouth breather type. A tired expression and attitude are observed. Attention is immediately directed to the nose on account of evident obstruction to proper breathing. The mouth is usually open. Two types of allergic nose pathology may be noted. In the acute rhinitis case the nose presents a pale, shiny, swollen mucous membrane bathed in a serous discharge, the turbinates and the outer wall of the nares in apposition, obstructing the nasal passage. This is less common than the chronic allergic type, in which the nasal passages appear normal. The narrowing of the breathing space occurs in the nasopharyngeal mucosa which is edematous. This is not visible by direct examination through the nose, but may be observed by means of a pharyngoscope. Hypertrophic adenoids will produce the same symptoms but can be ruled out by means of digital palpation. A large majority of these children have already had their tonsils and adenoids removed, frequently more than once. The pharynx may be studded with many discrete round pea-sized or elongated masses of swollen lymphoid tissue, a granular throat.

The geographical tongue or those that have smooth, bare, shiny, round or circinate lesions with raised borders are pathognomonic of an allergic diathesis, or present allergy in any individual. When this tongue sign is present it means that the person is allergic, although all allergic individuals do not have this type of tongue. This will be reported in detail in a future publication.

Sinus pathology consisting of an allergic edema may be present. Dean[4] states that radiography is very unreliable in children because of the thickness of the bones of the face. Nasal smears usually show an eosinophilia. In order to make the final diagnosis of the offending allergens, after the family history, the past and present history and examination have been completed, a *thorough* allergic study should be made. Skin testing is painless and quickly accomplished. The patient is tested for all foods, epidermals, plants and miscellaneous items with which he comes in contact. Intradermal testing was done only when there were no positive skin reactions or a trial period following skin testing showed no improvement. Invariably, in cases which had not improved, following scratch tests, the additional information obtained by intradermal tests was sufficient to effect prompt and continued relief.

Testing should be considered as an additional laboratory test. The information obtained is another clue in analyzing the case. Faulty skin tests as the result of improper technic, the use of poor materials, and an insufficient number of tests with the proper substances will fail to obtain adequate information. Recurrence of symptoms after long free intervals may necessitate retesting the patient, as new sensitiveness may be acquired and losses of old ones are the rule in younger children. Food sensitiveness is probably more common in children under six years of age. This tends to disappear in later years to be replaced by inhalant substances. Inhalant allergy, dust, pollens and epidermals, becomes more prominent after the age of four years.

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4. Dean, L. W.: Recent Advances in Pediatric Otolaryngology. J. Pediat., 1:379-390, Sept., 1932.

5. Cohen, M. B. and Rudolph, J. A.: Allergic and Infectious Conditions of Upper Respiratory Tract in Children; Differential Diagnosis. J.A.M.A., 97:980-982, Oct. 3, 1931.

DIFFERENTIAL DIAGNOSIS OF COLDS

ALLERGIC	INFECTIOUS
1. Hereditary relationship.	None.
2. Previous allergic manifestations, i.e., pylorospasm, eczema, colic, hives, hay fever, asthma.	None.
3. Not contagious or related to exposure.	Contagious and definite exposure.
4. Attacks frequent and recurrent, and may be seasonal.	Single attacks usually clear up in two to three days.
5. Coughing and wheezing frequently follow.	Rarely present.
6. Mild symptoms between more severe attacks.	None.
7. Constitutional symptoms slight.	Marked fever, prostration, etc.
8. Nose congestion always worse on awakening. Improves during the day.	Usually the same all day.
9. Sneezing paroxysms may be present. Itching nose frequent.	"Third sneeze usually conquers."
10. Mucous membranes pale, shiny, edematous.	Red, hyperemic, swollen.
11. Discharge thin watery mucoid type. Mucoid sputum.	Mucopurulent.
12. Nasal smears, eosinophilia.	Neutrophilia.
13. Allergic skin and intradermal tests are positive.	Usually negative.
14. Adrenalin specific for symptoms (cough, wheeze, hives).	No effect on symptoms.
15. Avoidance of causative allergens gives relief.	No relief.

Cohen and Rudolph[5] in 1931 very ably differentiated between the allergic and infectious colds.

In the diagnosis of acute and chronic rhinitis, croup, paranasal sinusitis, laryngitis, tracheitis and bronchitis the possibility of allergy must be considered. In children acute and chronic infections may obscure a primary underlying allergic condition.

TREATMENT OF ALLERGIC COLDS

The treatment depends primarily on the results of the allergic study. Dietary management, based on the results of the tests, should be strict. A small amount of an allergic food may be just as bad as a large quantity. It is highly important to substitute other foods to provide the proper amount of nourishment and essential food elements for childhood development. Place more emphasis on *what the child may eat* rather than what he may not have.

Avoidance of allergens present in the inhalant (dust) group is desirable. The following specific directions are given for a "dust (allergen) free" bedroom in order to minimize the dust content of the air:

Environmental control.

1. The patient's bedroom should contain only the necessary furniture, such as bed, dresser, table and chair.

2. No rugs, curtains, doilies or cloth decorations should be used unless they can be washed twice weekly.

3. The walls should be painted (washable), if possible.

4. All woodwork and furniture should be washed once weekly.

5. Oil, mop furniture and floors daily. Vacuum clean only.

6. All books, fuzzy toys and clothes are to be kept in another room or in a clothes closet which is dust proofed.

7. Kapok or cotton pillows are necessary. Feather pillows may be used if covered with dust proof materials.

8. The mattress should also be covered completely as it is probably the best dust catcher in the room. Down or feather pillows used as mattresses in bassinettes are responsible for many cases of eczema and asthma in babies. Wool blankets may be covered with a bag made of sheets. Silk should be avoided.

9. Avoidance of all animals (pets), plants, smoke, flowers, powders or dust in the immediate environment. The child is not to play in basements, attics, garages, empty lots or other dusty places. Do not use insecticides. Close windows or use cheese cloth screen over open portion.

It is surprising to note the great amount of relief obtained by these measures. With proper cooperation no further treatment may be necessary. Where the desired effect has not been attained, it is necessary to rely on specific desensitization. In western Washington we have tree pollens from February to May and grass pollens from May to August. There is practically no fall (ragweed) hay fever. Tree pollinosis in most cases is fairly mild and is easily controlled by specific treatment. Grass pollen antigen treatment has produced 90 to 100 per cent relief in several hundred children. An autogenous or stock house dust antigen will produce almost as good results in the treatment of dust sensitive cases as grass pollen antigen used in the treatment of grass hay fever. Epidermal antigen is equally effective in selected cases. There are few treatments in the entire field of pediatrics that will give more consistent and such a high percentage of relief of symptoms as in the treatment of these properly studied allergic children.

Various types of nose drops, iodides, ephedrine and other drugs may give slight temporary relief of local symptoms. The new vaporizers, spraying 1-100 (epinephrine) adrenalin into the throat will give spectacular relief for the allergic cough or wheeze.

It is very significant that the treatment for pollinosis makes most children less susceptible to common colds during the succeeding winter. Where the hay fever symptoms are relieved, the winter colds are decidedly fewer in number. This is a frequent and striking result. A certain amount of nonspecific effect or a decrease in sensitivity was obtained by the children receiving the injections of pollen, house dust or epidermal extracts. Most of these patients became not only free of their allergic symptoms but also became almost entirely free from respiratory infection. This has been stressed by Sternberg[6] and also by Vander Veer.[7] Technic of desensitization and the proper antigen must be known for good results. Most gratifying is the fact that after treatment the patients do not develop asthmatic symptoms, especially during acute infections.

PROPHYLAXIS OF ASTHMA

The prevention of asthma and other major forms of allergy is the ultimate goal in the treatment of frequent colds and chronic coughs of proven allergic nature. The immediate goal, the relief of irritating nose and throat symptoms, will restore the child to a plane of normal mental and physical activity. This may be attained by rational treatment. The parents should be given a simple but comprehensive lecture on the significance of the present allergic symptoms and the necessary prophylactic measures for the child's future welfare. They must also be impressed with the fact that treatment may extend over a period of years. With this knowledge they soon become detectives in the search for clues as to possible allergic foods, contacts or inhalants. Usually they are very cooperative. Education of the allergic patient may be compared to that of the tuberculous patient. His future health depends on his knowledge and understanding of the disease.

Kahn[8] has shown that in children with hay fever (seasonal colds) 5 per cent had pollen asthma from birth, 33 per cent in two years, 50 per cent before the end of the third year, 60 per cent by the fourth year and 80 per cent by the sixth year. This assumes greater importance when it is known that early recognition and treatment of the first allergic manifestations in infancy may aid in the prophylaxis of hay fever and asthma.

Piness[9] has shown in a series of several thousand patients who were thoroughly tested that more than 95 per cent were multiple sensitive. They were sensitive to foods, pollens, dust and epidermals in varying degrees. In other words, only 2 to 5 per cent of allergic individuals are sensitive to foods alone or only to dust or to pollen. For this reason, diet alone without treatment of the inhalant allergy may not produce the desired results.

Piness and Miller[10] state that 76 per cent of all patients with nasal manifestations of allergy gave a history of other allergic symptoms. Proper treatment of the nasal allergy has a decided favorable influence on the other forms of allergy. Peshkin[11] pointed out that about 40 per cent of a group of asthmatic children developed asthma after acute contagious diseases such as pertussis, measles, pneumonia and scarlet fever. It is quite probable that in most of these children the nasal manifestations had been present for some time before the appearance of asthma. This is verified by the history of the occurrence of frequent colds in a very large percentage of these cases.

Bray[12] states that there appear to be three means by which the relationship between infection and allergy may be evidenced. First, an acute infection often ushers in the sensitive period in an allergic person, the dormant allergic state becoming active during the period of lowered resistance; second, in many cases it appears that, in the absence of any hereditary taint, a definite sensitivity develops to some allergen during the damaged state of the mucous membrane; third, by reason of his allergy, an allergic person may be more susceptible to the inroads of infection, invading microorganisms thriving in the lowered resistance of a mucous membrane constantly irritated by a specific protein. Secondary infections of various parts of the upper respiratory tract are natural sequelae of these repeated insults to the mucous membrane.

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[6] Sternberg, L.: Effect of Pollen Therapy upon Common Cold in Hay Fever Subjects. New York State J. Med., 35:713-714, July 15, 1935.

[7] Vander Veer, A. and Clarke, J. A., Jr.: Permanent Results Following Treatment for Late Hay Fever. J. Allergy, 6:551-555, Sept., 1935.

[8] Kahn, I. S.: Significance of Negative Skin Tests in Pollen Hay Fever and Asthma in Infants and Young Children; Treatment. South M. J., 21:559-562, July, 1928.

[9] Vide supra No. 1.

[10] Piness, G. and Miller, H.: Importance of Food Sensitization in Allergic Rhinitis. J. Allergy, 2:73-75, Jan., 1931.

[11] Peshkin, M. M.: Prophylaxis of Asthma in Children. Internat. Clin., 3:262-266, Sept., 1930.

[12] Bray, G. W.: Recent Advances in Allergy. Second Ed. P. Blakiston's Son & Co., Philadelphia, 1934.

[13] Hansel, F. K.: Allergy of Nose and Paranasal Sinuses. C. V. Mosby Co., St. Louis, 1936.

When the allergic condition has been controlled by treatment, the infection will gradually subside. This will obviate the necessity of certain nose and throat operations, particularly those on the maxillary sinuses. Tonsil and adenoid surgery, when indicated, should be delayed in a child with nasal allergy until he has shown definite response to his allergic treatment.[13] Tonsils and adenoids should not be removed in allergic children during the hay fever season. The operation, if necessary, should be postponed until after the seasons of heavy pollination. Favorable operative results may then be expected. Surgical intervention may aggravate an allergic nose or throat.[14]

An allergic infant or child should not be induced to eat foods to which he shows a particular aversion or intolerance. This may be a manifestation of hypersensitiveness. This is frequently seen, especially in egg or spinach sensitive children.

The various symptoms of allergy comprise one of the largest groups of diseases in human beings (Rowe[15]). As methods of early detection of these symptoms are being discovered and applied, treatment has become more exact. End results in the form of complete relief are becoming more common. By means of early diagnosis in infants and children we may avert the more important allergic diseases. The pediatrician and other physicians treating children must assume this responsibility. Glaser and Landau[16] recently published an excellent article on the prophylaxis of allergy.

SUMMARY

1. Frequent colds (perennial and seasonal) and chronic coughs are frequently manifestations of allergy.
2. The diagnosis of allergic disease is made on (1) family history of allergy, (2) previous allergic history of the patient, and (3) a present history of allergic symptoms.
3. A complete allergic study is necessary. All foods, plants, epidermals and other substances in the patient's environment should be tested by scratch and intradermal technic.
4. The most constant symptom of nasal allergy is a "stuffy nose which is always worse on arising in the morning."
5. Chronic cough, occurring especially during the early morning hours, is a preasthmatic symptom.
6. The differential diagnosis of the allergic and infectious cold is presented.
7. Treatment on the basis of elimination and specific desensitization of pollens, epidermals and dust gives excellent results in children.
8. The prevention of asthma is possible by adequate treatment of frequent colds and chronic coughs of an allergic origin.

CASE HISTORIES

Typical of many similar patients, these are presented to illustrate the statements previously made.

Case 1. B. S., male, age eight years. His mother and her family have eczema, asthma and migraine. During infancy the patient had persistent vomiting (pylorospasm), for which many formulae were prescribed.

He has always had frequent colds and a persistent cough, often associated with wheezing. Constipation has been a prominent symptom. The tonsils and adenoids were removed July, 1931, at the age of four years. His symptoms became worse. Mouth breathing was exaggerated, especially at night. The nasal congestion was present at all times but was more pronounced on arising, improving during the day. Cough occurred in the morning. Wheezing was present with every fresh cold that produced a fever.

In 1933 (five years of age) twenty skin tests were made. No relief was obtained and they changed doctors. During this time he had developed summer hay fever (grass) and severe headaches behind his right eye. Sinus treatments and glasses did not relieve him. Three years later (eight years of age) he was returned for further study. The mother noted rosin from his violin strings caused coughing and wheezing, also that spinach, egg and tuna caused headaches.

This time a complete allergic study was performed. Skin tests were slightly positive to egg, spinach, dog, dog hair and cheese. Strongly positive reactions were obtained to the grasses. Intradermal tests gave marked response to egg, orange and house dust. Nasal smears showed 70 per cent eosinophilia.

Physical examination was normal except for a thin, slender boy. There was evident obstruction to the breathing passages in the postnasal space.

Treatment. The positive foods were eliminated and a dust-free room was prepared. He showed only slight improvement. Treatment was started with autogenous dust antigen. His improvement was striking. After the third injection his symptoms were entirely gone. His nose was clear and he had no cough. Twelve injections were given at weekly intervals. Following this he was given grass pollen treatments. His mother states, "he is one thousand per cent better. There is no comparison to his previous winter illnesses which were always severe. His nose is clear and he does not have asthma. Bowel movements are regular."

This case illustrates perennial and pollen hay fever, migraine and asthma. Complete relief was obtained only after a complete study was made and adequate treatment instituted.

Case 2. B. L., male, age six years. His mother has chronic sinus trouble. She has had three nasal operations with no relief.

At five months of age this patient was brought for examination because he had "sores on his tongue" since birth. Examination showed several round, irregular and circinate shiny, bare, patches surrounded by slightly raised pale furred borders. These sores evidently did not bother the baby. A large thymus shadow was noted during routine fluoroscopic examination. At four years of age (July, 1933) his tonsils and adenoids were removed on account of mouth breathing. One week later he developed a persistent head cold, always worse in the morning, associated with paroxysms of sneezing and a constant watery nasal discharge. His mother aptly described this as a "juicy nose." He sniffed and cleared his throat constantly. Examination revealed edematous shiny turbinates, obstructing completely both nasal passages.

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[14] Coca, A. F., et al: Asthma and Hay Fever in Theory and Practice. Charles C. Thomas, Springfield, Ill., 1931.

[15] Rowe, A. H.: Food Allergy. Lea & Febiger, Philadelphia, 1931.

[16] Glaser, J. and Landau, D. B.: Prophylaxis of Allergic Disease. J. Pediat., 8:469-470, April, 1936.

Thorough skin testing revealed marked sensitivity to wheat and house dust, smaller reactions to rye and carrot. His symptoms were entirely relieved by diet and environmental dust control. One and one-half years later (September, 1935, age six years) his nose became "stuffy" after eating wheat for a few days. Diet did not relieve him. He was retested and found very sensitive to rye, wheat, olives, lima beans, carrots, celery, salmon, cocoanut, cocoa, feathers and pyrethrum. Dust reacted slightly. Maple tree and the common grasses were all very positive.

Treatment. On diet control all symptoms disappeared. Grass pollen desensitization was given in 1936.

This case of perennial hay fever was relieved by elimination of wheat, and dust control. One and one-half years later his sensitivity changed; he became allergic to more foodstuffs and particularly to inhalants such as feathers, rabbit, cattle hair and pyrethrum (insecticide). Tree and grass pollinosis developed. He remains very well unless forbidden foods are eaten, when his nose becomes congested.

Case 3. M. G., female, age eight years. The father joined a theosophist group because medical care failed to relieve his chronic sinus and catarrh following three nasal operations. He is at present improved, due to "leaving his nose alone."

This patient had occasional head colds from three to four years of age. Cough became the predominant symptom following colds, persisting for weeks, occurring mainly at night. At times the cough was thought to be whooping cough except that it would disappear for two or three days at a time. Tiredness, anorexia, irritability and headaches were common complaints. Glasses were prescribed but did not improve her condition.

From six to seven years of age she had few colds. Hives occurred several times when seven years old. February, 1935 (seven years old), frequent nasal colds recurred, hearing was impaired, breathing was heavy and she was not gaining weight. The mother refused to allow the child to be tested as she thought this was just another fad. She was given cold shots, quartz treatments and vitamin D products. A dust controlled room was instituted. No relief was obtained. The child returned on June 22, 1935. Her symptoms were exaggerated. A thorough allergic study was done. Reactions were strong to wheat, egg, cocoa and fish, all epidermals, house dust, and tree and grass pollens. Clinically she was also sensitive to beef, although the test was negative.

Treatment. A diet based on the tests was instituted. Coseasonal grass pollen desensitization was given daily for four days. Relief was so marked that the patient did not return for six months. She again had continuous nasal colds, always worse on arising, headaches, always tired, and failing in her school work. She was eating "just a little wheat and eggs." A strict dietary regime was insisted upon. Stock house dust antigen was given daily. Within one week the mother stated "she did not believe such a miracle was possible." The child was promoted to the high group in her grade at school, her appetite become enormous, and she gained two pounds in one week. She has just completed pollen treatments.

A highly allergic child with a very skeptical mother made this problem difficult. Strict diet, dust, tree and grass pollen desensitization gave great relief. At present she eats all food except wheat, egg and beef. Diagnosis, perennial and seasonal hay fever, migraine.

Case 4. L. S., female, age six years. The mother has chronic sinus trouble and eczema.

The patient had eczema from eight to twelve months of age. She has had colds, bronchitis and "flu" many times since birth. Following pertussis at three years, she had asthmatic bronchitis for several months. Her tonsils were removed in August, 1934 (end of grass pollen season). She was improved for three months when colds began to recur frequently. They went to California for the winter. From January to June, 1935, she had colds every two or three weeks. A physician in Los Angeles advised her to have her adenoids removed again.

Her complaint when first seen on June 15, 1935, was a cold and cough for three weeks, with nasal congestion, always worse early in the morning. A watery discharge was present. A cough persisted with occasional wheezing. She was a mouth breather. Fatigue, anorexia and nervousness were always present.

Examination revealed a thin child. There was postnasal obstruction to breathing. Nasal smears gave an eosinophilia of 50 per cent.

A complete allergic study showed sensitivity to wheat, orange, cheese, beets, cauliflower, spinach and pork. Marked reactions to the most common grasses were present. Moderate sensitivity to chicken feathers, cattle and dog hair, wool, house dust and orris root were present.

Treatment. Diet and dust control was instituted at once. Mixed grass pollen desensitization was given. In ten days complete relief was obtained, the appetite became "wonderful" and the mother stated the child "felt marvelous for the first time in her life."

This patient has remained practically free of colds following six coseasonal grass antigen treatments. She has gained weight steadily and is normal in all respects. Pollen desensitization has also increased her resistance to winter colds. Diagnosis, perennial and pollen hay fever, asthma.

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EDITORIAL

TREATMENT OF DRUG ADDICTIONS

For many years the therapeutics of drug habits have figured largely in medical practice, many procedures having been followed by practitioners interested in attempts for their suppression and cure. No writer is more competent than Lambert[1] to discuss this problem, since he has devoted more than forty years to the study and treatment of these conditions. He states that "drug habit is best defined as the habitual use of any drug for the purpose of avoiding the emotional strains of life which are too intense for the personality to support." Insomnia has always been one of the leading causes for formation of the drug habit. One of the oldest hypnotics is chloral hydrate which induces strange delusions and disturbances of personality. The most common hypnotics of today are the barbituric preparations, of which veronal was the initiator, numerous variations appearing under various descriptive titles. Persistent users of these drugs may develop hallucinations and strange delusions resulting in mental irritability, making the victim unable to carry on ordinary existence. An excellent treatment recommended for these barbitural poisonings is the use of picrotoxin, whose physiologic action is a respiratory and vasomotor stimulation through the medullary centers.

The fundamental basis of alcoholic drunkenness and morphine addiction is essentially the same, the purpose being to meet the problems of life which at times seem to defy solution. It is not so much a matter of weak will as a question of emotions. When too disagreeable or intense to be harbored, temporary or continuous relief is sought in alcohol or permanent comfort is obtained through morphine. The use of these drugs seems to depend to an extent on racial customs. Western nations and Japan condone alcoholic indulgence, but condemn morphine addiction, while in China, India and the East opium is condoned but alcoholic indulgence condemned.

When taken to excess alcohol leaves permanent injury in changes in the parenchymatous cells of certain viscera, while morphine leaves behind no recognizable pathologic changes, even when indulged in for years. The chronic alcoholic never regains his personal charm and emotional values, while the morphine addict has no such change in personality after ceasing the use of the drug. The exact degree of sensitiveness to alcohol depends upon the ability of the liver or some other tissue to prevent its going into the circulation. The ability of a man to "carry his liquor" means that he possesses a power not understood of keeping the alcohol from the brain. A physiologic excess of alcohol will inevitably bring injury to the physical and mental makeup.

Among morphine addicts even more than alcoholics are found individuals with inadequate personalities, in whom the struggle for existence seems hopeless from the beginning. Morphine enables them to muddle along with the bitter edge of existence blunted. Some develop mental deterioration that may verge on insanity, others being cold blooded and selfish in their actions. One peculiarity of opium derivatives is that every normal individual who ingests them in small doses for a certain length of time inevitably acquires the habit. This is equally true of morphine, codeine, heroin, dionine, dilaudid and other less used preparations. The distressing and painful symptoms of withdrawal are observed after the use of all of these preparations. All physicians are familiar with the enormous quantities of morphine which an addict can consume without producing fatal results.

After a patient has passed through the withdrawal process and is apparently relieved of his need for the drug, he differs from the normal individual, since after several years the ingestion of an insignificant dose unknown to the patient may produce a relapse to addiction. This is explained by the theory, proposed by Ostromislensky and endorsed by the author, that morphine addiction is an example of allergy. The necessary antigen to produce this condition is a combination of morphine with some body proteid. Until sufficient antibody is formed to act with this combined antigen, addiction is not produced. The antibody exists in some of the body tissues where it can remain for years until ingested morphine may again initiate the habit. It is stated that the withdrawal symptoms of morphine are an exhibition of anaphylactic shock.

In the treatment of alcoholic addiction the author specifies the necessity of sleep with the description of the necessary drugs and specifications as to the method of withdrawal of alcohol. Likewise for the relief of morphine addiction, the method of withdrawal is explained in detail with mention of the drugs usually employed for that purpose. In the treatment of both of these addictions he describes with personal commendation a new drug, diphenylmethylpyrazonyl which is conveniently abbreviated into "rossium." This drug has been found to be an analgesic against certain forms of pain and has a soothing effect in asthma. It quiets the intense nervousness of the alcoholic debauch and shortens the excitement of delirium tremens. It has been found to be effective in relieving the withdrawal symptoms of morphine. It probably has some action on the autonomic nervous system, the balance of which is upset during morphine withdrawal, for vomiting, purging, sweating and lacrimation are symptoms of overstimulation of the parasympathetic system. The author has used this drug in the treatment of a large number of opium addicts and in many alcoholics and has found that it reduces withdrawal symptoms and period of hospitalization more than any other drug.

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[1] Lambert, A.: Therapeutics of Drug Habits. New Eng. J. Med., 245:72-82, July 9, 1936.

The author cautions against application of the word "cured" after the successful withdrawal of morphine. The patients then must be reconstructed psychologically and physically, this being especially true of the psychogenic group in whom intelligence does not control the emotions, thus presenting a very difficult task for treatment. As a basis for the treatment of many alcoholic and morphine patients, whose distortion of themselves necessitates a reorganization of their emotional life, a grasp of religious values is a very valuable and powerful adjunct. "To those who are not fortunate enough to possess this sense of values, there must be found some emotion higher and more powerful than the desire for obliteration of reality."

IT MAY HAPPEN HERE

The complacency with which a large number of physicians view the ever present threat of state medicine can be explained on only one basis and that is the belief that "it can't happen here." But do the activities of lay groups interested in this change of medical practice warrant such an indifferent attitude on the part of the medical profession? What has recently happened in British Columbia, while the profession took no active part to forestall the legislation, and what threatened the Washington legislature two years ago should be sufficient warning for the medical profession to bestir itself and prepare for an aggressive campaign to prevent what we all realize to be vicious legislation against not only the medical profession but also the prospective patients themselves.

At the present time the American Association for Social Security is sponsoring a bill to be presented before state legislatures which will provide complete medical and dental service under the control of an insurance commission, a majority of whose members may be laymen, and the chief administrative officer need not be a physician. This lay administration is to have complete control over the medical service through a local medical manager who is a physician employed by the lay administrators, and this same lay administration may remove any physician from the insurance system "after a hearing on written charges," whenever it considers his continued inclusion in the system "would be prejudicial to the adequate, proper or efficient furnishing of the medical benefits." The organized medical and dental professions are ignored in any matter relative to the management of the form of medical practice proposed.

In commenting on this law, the representative of the Bureau of Medical Economics of the American Medical Association states: "There is throughout the proposed law an apparently studied and carefully developed design to prevent the medical profession having any voice in the management of medical service. In this respect it rejects the lessons of the British, French and Scandinavian systems. It is generally admitted these are by far the most desirable of existing systems and that their superiority is due to the large share which the medical associations have in their management. This proposed law is, therefore, a throw-back to elements that have already been rejected in the more recent and best systems."

There is also the deliberate effort, already mentioned, to split the medical profession and thereby weaken its power by isolating the insurance practitioners from the general body of the profession. It seems a fair conclusion that the enactment of this law would completely abolish private practice in urban districts, since the trifling minority of the population which would not be forcibly included in the compulsory scheme or driven into the voluntary one would be entirely too few to support any practitioner.

There are few provisions to guarantee the character of the service, although this is the weakest point in all systems of insurance. Almost the only power that has been found capable of maintaining any sort of standards in existing systems has been the discipline enforced by national and local medical associations. There is a deliberate effort throughout this proposed law to destroy any such discipline or influence. This is done at a time when there is general acceptance of the fact that standards in industry can be best maintained through the use of trade and professional associations. Yet the oldest professional association, and the one that has an unequalled record of success in establishing and maintaining such standards of medical service, is in this scheme deliberately excluded from all share in determining and maintaining such medical standards under insurance.

For the tested method of professional control this plan would substitute a sort of gang foreman called a "local medical manager." This manager is selected and controlled by, and owes complete allegiance to the lay managers of the scheme. His principal interest and the interests of his superiors would be in controlling cash expenditures through certification for benefits. Experience in many systems has shown that any such supervisor with such duties is constantly in a state of antagonism to the physicians who give the service. However, no existing system has ever suggested the creation of quite as bad a situation in relation to such a supervision as this plan proposes.

This "medical manager" is to settle all complaints against the physicians and "to supervise and examine into the services rendered by all persons and agencies furnishing the medical benefits." This clause makes this manager a sort of superphysician boss, and gives him power to "supervise" the work of the practicing physician. It is introducing factory methods into the practice of medicine and removing responsibility from the practicing physician to an extent never previously proposed.

The lay employers of this "medical manager" have the power to remove any physician from insurance practice, in other words, to "fire" him and deprive him of the right to practice his profession in the only field of practice which will exist if this measure becomes a law. Unless all lessons of experience are false such a system would destroy most of the elements essential to rendering good medical service.

OREGON ANNUAL MEETING

The sixty-second annual meeting of Oregon State Medical Society will be held at The Dalles, October 8-10. Owing to the outstanding program which has been arranged and the fine days of Indian summer which prevail just east of the Cascades at that time of year, an unusually large attendance is in prospect.

Among the guest speakers will be Dr. Clifford Sweet of Oakland, widely-known pediatrician, who will speak on each of the three days on various phases of children's diseases with which the general physician is daily confronted. Another prominent guest speaker is Dr. C. E. Dolman, Director of the British Columbia Provincial Board of Health Laboratories, who will present a series of three papers dealing with the diagnosis and treatment of staphylococcal infections. Outstanding, also, will be the address of Dr. Joseph Tamura of the Department of Bacteriology and Hygiene of the University of Cincinnati College of Medicine on lymphogranuloma inguinale.

Of unusual interest will be the visit of Dr. Olin West, Secretary of the American Medical Association, who, by special invitation of the Council, will be the principal speaker at the annual banquet. Dr. West will discuss medical ethics in relation to the numerous schemes for altering medical practice which have been proposed in recent years.

The meeting offers an unusual opportunity to the membership to learn of the latest methods in the diagnosis and treatment of tuberculosis. Tentative plans call for one or more luncheons at the Eastern Oregon Tuberculosis Hospital, to be followed by the presentation of various cases illustrating the several forms of tuberculosis and the methods of diagnosis and treatment employed. This feature of the meeting will be directed by Dr. James Odell, medical director and superintendent of the hospital.

As in former years, the House of Delegates will meet at breakfast each morning at The Dalles Hotel. The annual banquet will be held on Friday evening, October 9. Dr. Fred Thompson of the Local Committee on Arrangements has promised that venison will be featured. It is said that Dr. Thompson's prowess as a hunter is such that the membership may safely rely upon his promise.

While no specific time has been set aside for golf, members are invited to play on the splendid course of The Dalles Country Club. The Oregon Medical Golf Trophy which is temporarily in the possession of Dr. Merle G. Howard of Eugene will again be open to competition.

All scientific sessions will be held at the Wasco County Court House, which is but a few blocks from The Dalles Hotel. This structure, which is one of the finest public buildings in the state, has been made available to the society through the courtesy of the officials of Wasco County.

The Woman's Auxiliary will also convene at this time at a separate meeting place. In addition to the transaction of the usual business, an attractive program of recreation has been arranged by the wives of The Dalles physicians.

Members are urged to make hotel reservations at once. All reservations should be sent to The Dalles Hotel, whose management will arrange suitable accommodations at that hotel or elsewhere. There are a number of excellent auto camps near The Dalles, one of which is owned by Dr. Fred Thompson. Reservations for that type of accommodations should be made through him.

The following preliminary program presents the papers and essayists who have been listed at this date.

PRELIMINARY PROGRAM

GUEST SPEAKERS

Clifford Sweet

1. "The Child as a Patient."
2. "The Diagnosis and Treatment of Upper Respiratory Tract Infections in Children."
3. "Acute Surgical Conditions of the Abdomen in Children."

C. E. Dolman

1. "Diagnosis and Treatment of Localized Staphylococcal Infections."
2. "Diagnosis and Treatment of Generalized Stahyplococcal Infections."
3. "Principles and Practice of Serum Therapy."

Joseph T. Tamura

"The Cultivation of, and Immunological and Clinical Studies with, The Virus of Lymphogranuloma Inguinale."

LOCAL SPEAKERS

Otis F. Akin. "Treatment of Fractures of the Neck of the Femur."

R. F. Berg. "Interesting Aspects of Knee Joint Pathology from a Diagnostic, Clinical and Therapeutic Standpoint."

Edmund H. Berger. "The Importance of Kidney Function in Alkalosis."

Marr Bisaillon. "Some Observations Concerning Pneumonia."

Harry C. Blair. "Common Disorders of the Feet."

I. C. Brill. "The Treatment of Auricular Fibrillation."

Louis P. Gambee. "The Diagnosis and Treatment of Infections of the Hand."

Franklin P. Johnson. "A New Ureteral Stone Snare."

G. N. Pease. "A Discussion of the Different Methods of Surgical Anesthesia."

William M. Wilson. "The Etiology, Pathology, and Treatment of Functional Uterine Bleeding."

F. B. Zener. "A More Effective Method of Treatment of Trichomonas Vaginalis Infection in Women."

MEDICAL NOTES

The American Board of Internal Medicine (Inc.) was organized June 15, 1936, as result of efforts on the part of American College of Physicians in conjunction with the Section on Practice of Medicine of the American Medical Association. The purpose of the Board will be certification of specialists in the field of internal medicine and establishment of qualifications for such certification. After July 1, 1937, qualification and procedure will be inaugurated for certification in more restricted and specialized branches, as gastroenterology, cardiology, metabolic diseases, tuberculosis, allergic disease, etc. Such special certification will be available only for those who have passed the examination for certification in general internal medicine. Each applicant for examination in internal medicine will be required to meet the standards of general qualifications, professional standing, special training. The first written examination will be held in December, 1936, and successful candidates will be eligible for the first practical examination at the time of the annual meeting of American College of Physicians at St. Louis in April, 1937. The second practical examination will be held at Philadelphia near the time of the annual meeting of the American Medical Association at Atlantic City in June, 1937. Application blanks and further information can be obtained from the chairman, Walter L. Biering, M. D., 406 Sixth Avenue, Des Moines, Iowa.

Inter-State Post Graduate Medical Association of North America presents annually a program of post graduate lectures and clinics which is unrivaled by anything of its sort in this country. The Twenty-first Inter-State Assembly will be held at St. Paul, Minn., Oct. 12-16 with preassembly clinics Oct. 10 and postassembly clinics Oct. 17 in St. Paul hospitals. The purpose is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical sciences. In cooperation with Minnesota State Medical Association, Ramsay County Medical Society will be host to the Assembly. A cordial invitation is extended to all physicians in good standing in their state society to attend this meeting. Registration fee of $5 will give admission to all scientific and clinical sessions. The list of distinguished teachers and clinicians who will take part in the program will be found on advertising page 3.

American Board of Obstetrics and Gynecology will hold its next written examination and review of case histories of Group B applicants in various states in the United States and Canada on Saturday, November 7. Applications for the examination must be filed with the secretary, Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6), Pa., sixty days prior to the scheduled examinations.

OREGON

A Twenty-five Bed Hospital is to be constructed at Silverton through bequests of descendants of some of the pioneers of this city. Plans have been completed and bids are to be called soon.

Emergency Hospital. The city council of Klamath Falls has voted to establish a room for emergency cases at the city hall.

Hospital Closed. Seaside General Hospital, located at Seaside, has been closed and the patients removed to their homes. The proprietor was forced to give up the project because of ill health.

The Mast Hospital at Myrtle Point has recently been enlarged and new equipment added, to the extent of $10,000. The capacity of the hospital has been increased from twenty to thirty-two beds.

Nurses Home. The State Board of Control recently accepted formally the new $27,000 nurses home at the tuberculosis hospital at The Dalles.

Roger Biswell, Jr., and His Wife, Dr. Flora Biswell, have opened offices in Baker in conjunction with Roger Biswell, Sr. Dr. Flora Biswell will limit her practice to diseases of women and children.

Ernest C. Miller, who has recently served as interne at Multnomah County and Doernbecker Hospitals at Portland, has located for practice at Salem.

WASHINGTON

The Marcus Whitman Memorial Celebration in Walla Walla, August 13-16, featured the medical aspect of this pioneer's life by special medical addresses. With Park W. Willis of Seattle as presiding officer, addresses were made by D. F. Bice of Yakima, Frederick C. Waite of Cleveland, J. H. Crampton of Lewiston, Ida., G. A. Massey of Klamath Falls, Harold M. F. Behneman of San Francisco, and Olaf Larsell of Portland. The presentation of the portrait of Dr. Whitman, painted by Ernest R. Norling of Los Angeles, was a special feature of the program. John H. O'Shea of Spokane represented the contributing doctors while Ralph A. Fenton of Portland accepted the portrait for the American Medical Association which was then presented to Whitman College as a permanent memorial.

Basic Science and Medical Examinations were held in Seattle June 25-30. Seventy-nine applicants appeared for basic science examination, of whom failures were recorded for eight medical practitioners, four osteopaths and two chiropractors. Following this thirty-eight physicians were licensed to practice by examination while thirty were licensed by reciprocity. Some of these licentiates passed the basic science examination at the winter session, while some basic science applicants did not appear for the summer medical examination.

Erection of New Hospital Buildings. The Tacoma Hospital of the Indian Service has been promised a $1,500,000 PWA appropriation for the erection of modern buildings. The thirty-acre tract holds buildings for general medical cases as well as tuberculous conditions. The Indian patients represent forty tribes from nearly every state in the Union and Alaska.

Addition to Hospital. Plans have been completed for kitchen and dining room addition to the state hospital at Fort Steilacoom. W.P.A. funds to extent of $75,000 have been allocated.

Hospital Enlarged. University General Hospital in the General Insurance Building (formerly Brooklyn Building), Seattle, has recently enlarged its quarters.

Proposed Hospital Lease. Grays Harbor County Commissioners have called for bids for a three years lease on the county building occupied by Grays Harbor Hospital Association in Aberdeen. It is planned to improve the building or erect a new one.

New Hospital Management. E. P. Murdock has taken over the Stevens Hospital of Okanogan, now to be known as the Okanogan Hospital. New roentgen equipment is to be installed.

Hospital Addition. Swedish Hospital of Seattle has started work on a two-story addition to cost an estimated $55,000. The unit will be 47x31 feet in area with full concrete basement.

Crippled Children Clinics. Fifty-three patients were examined at the Tacoma General Hospital, July 28, by Drs. Allison of Tacoma and Lile of Seattle. A similar clinic was held at St. Joseph's Hospital in Bellingham on the same date. On July 30 the same type of examination was made at the Clark General Hospital, Vancouver, by W. H. Goering of Tacoma. These clinics have recently been established by the State Department of Public Welfare, and accept patients between the ages of fourteen and twenty-one after recommendation by the family physician.

Division of Maternal and Child Hygiene of the State Department of Health has recently established a demonstration area in Snohomish County which is attracting a great deal of attention. This is the only area of this sort west of the Mississippi. Attendance at lectures is increasing, and an open house attracted a number of visitors to the headquarters on August 6.

E. B. Potter, who has been associate professor of surgery under F. A. Coller at University of Michigan Medical School, Ann Arbor, for the past six years, has located in Seattle. He will practice at Virginia Mason Hospital, where he will be chief on a service in general surgery. Joel Baker will continue as chief of another service in general surgery.

Frederick J. Miller has recently located for practice at Spokane where he will specialize in eye, ear, nose and throat practice. After graduating from Jefferson Medical College he practiced for a time at San Francisco and Los Angeles. Of recent years he has been located at Pittsburgh, Pa.

H. L. Dodge of Anacortes, who has been seriously ill in the Anacortes Hospital, has been returned to his home. During his illness his practice has been under the care of his son, E. E. Dodge.

Clyde T. Smith, who has recently practiced in Pantego, N.C., has located for practice in Aberdeen. He will make a specialty of orthopedics and urology.

R. E. and P. S. Nelson of Seattle have opened offices in the University district. They grew up in the district and received their medical training in Los Angeles.

James A. Roe, who recently completed his internship at St. Joseph's Hospital, Tacoma, has opened an office at Morton. Dr. Roe is a graduate of Creighton University.

H. R. Marsh of Winlock, who has practiced there for fifteen years, recently moved to Long Beach. He will practice at Ilwaco a portion of the time.

Ivan E. Bennett has located for practice at North Powder after four years in Independence.

R. B. Boettner of Bellingham has been appointed deputy coroner.

Wedding. Joseph F. Griggs and Miss Jeanette Speiden of Tacoma were married August 8 at the extreme summit of Mount Rainier. This marriage is the culmination of a romance which began at Mount Rainier in 1929, when Dr.

Griggs was an employee of the Rainier National Park Company.

IDAHO

C. G. Brown of St. Maries, 88 years of age, has moved to Spokane with his wife, aged 86 years. He located in Spokane in 1888 after practicing in Illinois more than fifteen years. It is stated that he has been physician, farmer and statesman. Both he and his wife attended the funeral of Abraham Lincoln. Their present state of health would indicate more future years of activity.

South Side Medical Society held a meeting at Twin Falls, August 13. Papers were read by W. F. Passer of Twin Falls on "Infant Feeding" and J. F. Davis of Kimberley on "Rocky Mountain Spotted Fever Tick." The following delegates were elected for the annual meeting of the state association in Boise: D. L. Alexander, and C. R. Scott of Twin Falls; J. O. Cromwell of Gooding; E. H. Elmore of Rupert; alternates are C. F. Zeller of Jerome; E. R. Weaver of Twin Falls; S. Hopper of Hazelton and E. C. Jensen of Rupert.

L. M. Kelly of Burley was recently discharged from Seattle General Hospital following a nephrectomy for hydronephrosis. Although Dr. Kelly had a rather stormy convalescence he has made an excellent recovery.

Samuel Weissross of Pocatello has resigned as director of the Bannock County health unit to enter an eastern university for further training in public health work. No successor has yet been named.

Garlic Breath Odor. M. A. Blankenhorn and C. E. Richards, Cincinnati (*Journal A. M. A.*, Aug. 8, 1936), point out that the fetid odor that persists for many hours on the breath of one who has eaten garlic or onions is so persistent, even though the mouth is clean, that the belief has prevailed for many years that the odor comes from the blood by way of the lungs. The first experimental studies on the disposition of alliaceous essential oils (garlic and onion) in the body were reported in 1930 by Lehmann. He concluded from his studies that during digestion such oils pass into the blood stream, are then aerated from the blood into the lungs, and so pass into the expired air. The belief in a systemic origin of garlic breath odor is rarely questioned, but recently a report of experiments from a department of applied physiology was published, stating that such was not the case. The experiments proved, according to the authors, that the odor "arises solely from particles of onion or garlic retained in the structures of the mouth." One of the authors many years ago made tests on a patient with a gastric fistula. This test indicated that the odor came from the blood, but since this experiment proved what every one already believed, a report was dispensed with. Now, however, with newer methods, there is some doubt about the subject which arouses interest. The matter is important as well as interesting because the recent experiments, if correct, have given a way to cleanse the mouth and thereby make the eating of garlic and onions pleasant to everyone concerned. The authors repeated their experiments. Because the chemical methods, recently used to prove that garlic odor does not come from the lungs, were described by the authors as not being specific for onion or garlic, they resorted to different methods; namely, smelling the breath principally. The results of the experiments made by the authors give strong evidence that garlic and onion odors come from the blood by way of the lungs and do not arise from "particles of onion or garlic retained in the structure of the mouth." Mouth washes merely mask the offending odor and do not cure it.

OBITUARIES

Dr. John R. Neely of Spokane, Wash., died in a nursing home in London, England, on July 31, aged 77 years. Death was due to heart disease and diabetes. He received medical degrees from Howard University College of Medicine in 1887 and from Georgetown University School of Medicine in 1891. He was on his way to the Olympic Games in Berlin at the time he was taken ill. He went to Spokane in 1905 and was with the city health department for eighteen years. He had always taken an active interest in athletic events and had not missed a major high school or college event in Spokane for the last thirty years. The high point in his long period of interest in athletics was to have been attendance at the eleventh Olympiad.

Dr. May McKinney Palmer of Seattle, Wash., died in San Francisco, Calif., April 22, 1936, from disease of the heart, aged 71 years. She was born at Pittsfield, Pa., in 1865. Her preliminary education was obtained in New York. Her medical degree was received from Cooper Medical College, San Francisco, in 1899. After graduation she married Dr. Franklin S. Palmer of Seattle, who practiced several years in Korea, where he was surgeon for a gold mining company. Later they lived several years in New York, returning to Seattle in 1907. During certain periods she engaged in general practice, paying particular attention to preschool clinics. She was an extensive traveler and delivered many interesting lectures on her travels and observations. She was connected with women's clubs and organizations. In the winter previous to her death she went to the South Sea Islands, where she expected to reside for some time. Realizing that her health was in a critical condition she started the journey for Seattle, but developed a fatal illness which required her to stop in San Francisco.

Dr. William Henry Baugh of Shoshone, Ida., died August 4 of diabetes and arteriosclerosis, aged 72 years. He was born at Boonesville, Mo., in 1864 and received his medical education at Missouri Medical College, graduating in the class of 1891. He came directly to Idaho and has lived in Shoshone for forty-three years. He was a member of several Masonic organizations and was well known for his fraternal activity throughout the state. He was an ardent sportsman and until two years ago was still very active in the field.

Dr. Robert E. Lyall of Port Townsend, Wash., died in Los Angeles, August 4, aged 80 years, after an illness of several months. He was born in Scotland December 26, 1856, and received his medical education at the University of Edinburgh and Willamette University Medical Department, 1882. He came to Washington territory in 1881. He served as agency physician at Quinault and Neah Bay reservations. After several years of public health service he engaged in private practice at Port Townsend.

Dr. Frank B. Evans of Sand Point, Ida., died at Portland, Ore., July 22, of heart disease, aged 55 years. He had gone to Portland a few days prior to his death for treatment. He was born in 1881 at Dow City, Iowa, and graduated from Northwestern University Medical School in 1904. He practiced for several years in Nebraska, where he served in the legislature. He located in Dover in 1923, later moving to Sand Point. He was active in public affairs and politics and was elected to the Idaho senate in 1932. At the time of his death he was a Democratic candidate for the same office. He was a member of the school board, Chamber of Commerce and the Kiwanis Club. He had also recently been county physician of Bonner County.

Dr. H. Max Mehlig of Bellingham, Wash., died July 18, after a brief illness, said to be due to an arterial infection, aged 63 years. He was born in 1873. He received his medical degree from Central College of Physicians and Surgeons, Indianapolis, in 1897. Following a short period of practice in Jacksonville, Florida, he came to Bellingham in 1905. He specialized in anesthesia and was widely known for this work in this field. At the time of his death he was secretary of the staff of St. Joseph's Hospital. He had served several terms as coroner of Whatcom County.

Dr. Wilbert E. Fordyce of Sunnyside, Wash., died August 12 at Portland, following an illness of a year, aged 62 years. He was born at Waynesburg, Pa., in 1874. He received his medical degree from Keokuk Medical College, Iowa, in 1900. He practiced in Ainsworth and Oelwein, Iowa. He entered service during the World War, receiving a commission as lieutenant in the Medical Corps. He located for practice at Sunnyside in 1910. Besides his interest in medicine, he was active in all local and civic affairs.

Dr. J. F. Miller of Pocatello, Ida., died at his home July 18, aged 60 years. He was born September 29, 1876, at Jonesboro, Tenn. He graduated from Lincoln Memorial University, Medical Department, Knoxville, in 1901. Prior to eighteen years at Pocatello he had practiced for about ten years in Oaksdale, Wash. During the war he was a captain in the 57th Infantry Medical Corps.

Dr. Robert S. Miles of Tacoma, Wash., died August 10, aged 60 years. He was born in Norwood, Minn., in 1876 and received his medical degree at Minneapolis College of Physicians and Surgeons in 1903. He was a resident of Tacoma for twenty-four years and specialized in children's diseases. He was a Spanish-American war veteran, having received his honorary discharge from the army at the age of nineteen.

Dr. A. E. Baldwin of Seattle, Wash., died in Providence Hospital from Addison's disease August 8, aged 42 years. He was born in St. Louis, Mo., in 1894. He received his medical degree from University of Minnesota Medical School in 1924. He came to Seattle in 1930, after practicing six years at Huston, Minn. He developed Addison's disease in 1933 and has been completely incapacitated for two years.

Dr. Jerome E. McLaughlin of Winchester, Ida., died suddenly at his home from apoplexy, July 19, aged 65 years. He was born at Blue Earth, Minn., July 17, 1871. He received his medical degree from University of Minnesota Medical School in 1906 and located in the vicinity of Winchester about thirty-five years ago. His practice was a difficult one, being scattered over a sparsely settled and mountainous country.

Dr. Joseph B. Chapman of Seattle, Wash., died August 15, after prolonged illness, aged 73 years. He was born in Pennsylvania in 1863. He received a license to practice in Washington in 1889 after acquiring a diploma from Washington State College of Biochemistry in Spokane which became extinct many years ago.

BOOK REVIEWS

Diseases of the Respiratory Tract. Clinical Lectures of the Eighth Annual Graduate Fortnight of the New York Academy of Medicine: By 21 contributors. 418 pages with 56 illustrations. Cloth, $5.50 net. Philadelphia & London: W. B. Saunders Company, 1936.

After eighty years of existence the New York Academy of Medicine, which formerly confined its activities to members only, has recently broadened its scope by extending its educational opportunities to the outside profession and even to the public. Each year a subject is selected of far-reaching importance in the practice of medicine and surgery, and a symposium is rendered upon its many ramifications. This year the theme has rested with the discussion of diagnosis, treatment and prevention of diseases of the respiratory tract which are responsible for more illness and deaths than any other system except the heart and blood vessels.

Discussions include a wide variety of ailments, such as the common cold and influenza, allergy, sinus disease, pneumonia, chronic pneumonitis, bronchiectasis, tuberculosis, pneumoconiosis, lung abscess, pulmonary embolism and carcinoma of the lung. The reviewer was especially impressed by Ramirez's splendid paper on respiratory allergy, wherein he accurately outlines the active immunization against inhalants and the use of vaccines, lipiodol, iodides, calcium and antispasmodic drugs. Dochez gives a very critical talk on the common cold.

Jackson sketches briefly some of the most important uses of the bronchoscope at the present time. Meakins portrays the causes of chronic pneumonitis, other than tuberculosis, actinomycosis and mycotic infections, as due to atelectasis, bronchopneumonia, lobar pneumonia, aspiration pneumonitis, carcinoma of the bronchus, benign tumors, bronchostenosis, pneumoconiosis, metastatic pulmonary infections and syphilis. The reviewer was well pleased in reading the chapters on pneumoconiosis, carcinoma of the lung and diseases of the mediastinum. The conciseness of the many papers which were presented can well be judged by the comparative smallness of the volume in contrast to the usual massive size of many of its predecessors. The book is highly recommended. Bowers.

The Collected Papers of the Mayo Clinic and the Mayo Foundation. Edited by Richard M. Hewitt, B.A., M.A., M.D., Lloyd G. Potter and A. B. Nevling, M.D. Volume XXVII (Papers of 1935 — Published 1936). Octavo of 1353 pages with 256 illustrations. Philadelphia and London: W. B. Saunders Company, 1936. Cloth, $12.00 net.

For twenty-seven years have we had the benefit of the Collected Papers of the Mayo Clinic. If one wished to study the progress of medicine and surgery in the United States for the past quarter century the best work of reference would be the Mayo Clinic volumes. This will be a book notice, not a review. A review of such a volume is, of course, impossible.

Alvarez writes one of his lively and shrewd papers on the present craze for vitamins. How about the "healthiest, huskiest, fattest children with perfect teeth, who never saw a cow, a hen, a fruit or vegetable"? He refers to the Eskimos who live wholly on meat (with liver, kidneys, brain and marrow) and fish. Large doses of vitamin D are lethal, and now that it is being put into milk, bread, butter, ice cream, breakfast food, chewing gum and cough drops, it may be that the government will have to step in and stop the practice. Then, as vitamins are chiefly concerned with growth, what will happen to the oversized children of oversized parents? "Many of our boys are too tall for comfort in chair, bed, theater seat or Pullman berth. I am impressed with the number of girls I see who are so tall and big in every way that they are embarrassed and unhappy, and their chances of marrying are diminished." Avitaminosis is rare in adults, except in recluses who do their own cooking, food cranks, alcoholics and patients living for long periods chiefly on milk. The reviewer has seen one case of marked scurvy in a pioneer who "batched it," a mild attack of beri-beri in a doctor who tried to exist on alcohol. It is refreshing to hear an authoritative revolt against the prevailing feminine cuisine of carrots, spinach and orange juice. Almost one longs for the good old days of beef steak and fried potatoes.

There is an interesting article by Nygaard and Brown on essential thrombophilia. This disease may also be described as "simple thrombosis." Five cases are reported in men, their ages running from twenty-six to fifty-three. The ordinary occlusive diseases of arteries include thromboangiitis and thromboarteriosis obliterans, and occlusion from embolism. The patients with simple thrombosis have no recognized vascular disease but are robust adults who suddenly have occlusion of one of larger arteries of the extremities. In addition to the arterial lesion, the superficial or deep veins may be thrombosed, and ulceration and gangrene may occur. Other vessels may be thrombosed, other than those in the limbs, as the cerebral, renal and coronary vessels.

No primary disease has been found to explain this disorder, there being no demonstrable disease of the tunics of the blood vessels. The pathology seems to lie in instability of suspension of the platelets so that they are precipitated or agglutinated to form the nucleus of the thrombus. There appears to be a physiochemical change in the plasma with increased coagulability in four of the five cases reported.

There are one hundred and forty articles in this collection, of which fifty-seven are abridged. No annual medical publications are of more practical value to physician and surgeon alike. WINSLOW.

SURGICAL EMERGENCIES IN CHILDREN. By Harold Clifford Edwards, M.S., London, F.R.C.S., England. Surgeon and Lecturer in Surgery to King's College Hospital, etc. 274 pp. $4.50. Wm. Wood & Co., Baltimore, 1936.

This book brings together in a clear form a concise review of the more common surgical emergencies which occur during infancy and childhood. The scope is well shown by the table of contents. There are excellent chapters on the ear, nose and throat, and general anesthesia. Attention is given to premedication and to the use of basal hypnotics and anesthetics, as well as to the various local and general anesthetics with indications for individual use.

The common fractures of childhood are discussed, with clear indications for treatment. Under head injuries the differences between fractures in adults and those in infants and children are clearly shown. Abdominal pain is well discussed. Injuries to the abdomen include accidents due to motor traffic, falls and the swallowing of foreign bodies.

Empyema is included in the section on conditions in the thorax, but the author remarks "it should not be regarded as an emergency in the strict sense of the word. A clear understanding of the pathologic anatomy has led to the abandonment of the one-time practice of operating on all cases as soon as the diagnosis is made." Under the urinary tract pyelitis with the differential diagnosis from acute appendicitis, perinephric abscess, torsion of the ovary and testis, and acute orchitis are discussed.

The author covers a field in which there is not already a multiplicity of books, giving the results of his own experience and observations rather than a general review of the subject. This is in no sense a text book as the author presupposes adequate surgical training and judgment on the part of the reader. Essential details, however, are clearly set forth. Illustrations and text are clear, the book is of convenient size, and it is well indexed, making it especially valuable for quick reference. COE.

THE TOXAEMIAS OF PREGNANCY. By Dame Louise McIlroy, D.B.E., LL.D., M.D., D.Sc. (Glasg.), D. Sc. (Lond.), D.Sc., Hon. (Belfast), F.C.O.G., M.R.C.P. Consulting Obstetrician and Gynaecological Surgeon, Royal Free Hospital, etc. 355 pp. $5.00. William Wood & Company, Baltimore, 1936.

The author states that the word toxemia is a misnomer in connection with pregnancy as no toxins or specific poisons have ever been isolated in spite of much diligent laboratory research. Attention in the study of toxemia is directed mainly to the last three months of pregnancy. This condition is said to be the acid test of metabolic function as a whole. After discussion of causes of toxemia, it is stated that our present knowledge recognizes two main groups, hepatic and renal. Postmortem examinations of the liver indicate the presence of a severe poison or toxin, but there is no knowledge as to its relationship to the toxemias of pregnancy. Pregnancy may cause a breakdown in renal function which would never have occurred otherwise. There is a discussion of diet deficiencies in pregnancy and their bearing on the toxic condition. Under symptoms and signs of toxemia are considered in detail vomiting, heart burn, hypertension, edema, nutritional anemia, infection of the urinary tract, jaundice and oliguria, toxic hemorrhage and shock, eclamptic convulsions and coma. Treatment is presented under the headings of prevention and treatment of mild and severe toxemia. Under medical and surgical treatment respectively are reviewed the standard recognized procedures. The author states there is no complication in pregnancy in which there is so much justification for abortion as in chronic nephritis. The risks of the mother are too great to allow much consideration for the fetus. This is a comprehensive volume on the subject considered and offers useful information.

GYNECOLOGY AND OBSTETRICS. By Edwin M. Jameson, M. D., Consulting Surgeon, Reception Hospital, Saranac Lake, N. Y., etc. With 5 illustrations. 170 pp. $2.00. Paul B. Hoeber, Inc., Harper & Brothers, New York, 1936.

This booklet is one of the "Clio Medica" series which features histories of various medical topics. Interesting facts are presented of the earliest practice of obstetrics and gynecology. Thus it is recorded that abortion was practiced in early antiquity to prevent overpopulation and to avoid dangers of reproduction. There is a review of the progress of these specialties during the Greek and Roman period. It is recorded that obstetric anesthesia was practiced at this time, analgesia being obtained by the use of opium, alcohol, hashish and other drugs. It is an error to consider many instruments of this day to be of modern production. The uterine sound, used for the purpose of correcting displacement, was employed in the seventh century as was also true of the speculum, one of the latter being unearthed in the ruins of Pompeii. The popular obstetrician of the seventeenth century, Chamberlen, one of a family of physicians, invented the obstetric forceps, keeping it as a secret among the family practitioners for about a century. Many interesting facts are presented, showing the development of these specialties in the modern period. The story of puerperal fever is considered at length, many explanations being given for this dreadful calamity before its bacterial origin was discovered. The history of gynecologic surgery is of peculiar interest to American surgeons on account of the pioneer work done by McDowell, Sims and Emmett and others. One interested in medical history will find absorbing reading in this booklet.

THE SINGLE, THE ENGAGED AND THE MARRIED. By Maurice Chideckel, M.D. 268 pp. $2.50. Eugenics Publishing Company, Inc., New York, 1936.

In recent years stress has been laid on sex problems both in medical and lay publications. The author states that many physicians and most laymen are inclined to view sex and its abnormalities in the wrong light. Some are more concerned with outside manifestations of sex abnormalities than in recognizing that emotional attitudes and sensory aspects of sex are a vital part of human nature. In order to insure intellectual and emotional stability adequate sex education is necessary. There is no need for a revolutionary change from the present status of marriage relations to companionate marriage or new forms. This book is devoted to the discussion of sexual matters under the headings of love, courtship and marriage. Every physician is familiar with the distressing results that often follow unwise or abnormal sexual relations during these periods. The author's opinions and conclusions are based on a wide experience with individual cases. From these he illustrates his contentions, whose purpose is to establish harmonious sexual relations in the marital state. Various sexual maladjustments are discussed which form the basis for a multiplicity of family discord and wrecking of human life. Perusal of this volume will give one an insight into many aspects of sex abnormalities and their significance which might be overlooked by the indifferent practitioner. Every physician should be in position to advise wisely regarding these matters.

AN INDEX OF TREATMENT. By Various Writers. Edited by Robert Hutchison, M.D., LL.D., F.R.C.P., Consulting Physician, London Hospital, and Hospital for Sick Children, Great Ormond Street. Eleventh Edition, Revised. 1020 pp. $12.00. William Wood and Company, Baltimore, 1936.

There must be a demand for a book which passes through eleven editions in thirty years. It was stated in the first edition, 1907, that this work was intended to provide the practitioner with a complete guide to treatment in moderate compass and in a form convenient for reference. The aim has been to cover all branches of medical and surgical practice in condensed form. Only the simplest and most effective procedures have been included. Methods demanding the services of the specialist have been omitted in favor of simpler procedures available for the general practitioner.

This volume includes contributions by ninety-one British practitioners in all lines of medical and surgical practice. They represent hospitals and institutions in all parts of the British Empire. The subjects treated are arranged alphabetically, beginning with abdominal injuries and ending with yellow fever. In consulting this book for information on a given subject, one is not embarrassed by multiplicity of therapeutic descriptions. Whether the problem by medical or surgical, standard recommendations are presented. This edition has been thoroughly revised and many new subjects included which have developed during the five years since the previous edition.

EXAMINATION OF THE PATIENT AND SYMPTOMATIC DIAGNOSIS. By John Watts Murray, M.D. With two hundred seventy-four illustrations. Second Edition. 1219 pp. $10. The C. V. Mosby Co., St. Louis, 1936.

This volume might have been named a handbook of clinical examination and diagnosis for the general practitioner. It is written in a style that makes it readily available for quick reference because of its tabulations and diagrams. The book opens with a section on history taking that is extensive and thorough. It would be well for every doctor to read these chapters no matter what his specialty. Then follow 800 pages divided into diseases of single organs or systems of the body. This begins with a section in respiratory disease. The description and discussion of the diagnosis of pulmonary tuberculosis is excellent. Treatment in some diseases is suggested, but no attempt is made to give detailed laboratory technic for biochemic tests. This book is well organized, but contains no illustrations except in the chapter on skin diseases and a few in the gynecologic section. BURNS.

RECENT ADVANCES IN GENITO-URINARY SURGERY. By Hamilton Bailey, F.R.C.S. (Eng.). Surgeon, Royal Northern Hospital, etc., and Norman M. Matheson, M.B., F.R.C.S., M.R.C.P. Surgeon, Central Middlesex County Hospital. With 89 Illustrations. 213 pp. $5.00. P. Blakiston's Son & Co., Inc. Philadelphia, 1936.

In this volume the authors have attempted to present recent innovations as they affect the commoner conditions encountered in urologic practice. Each of its thirty-two chapters deals concisely with a given condition, briefly reciting its description and best treatment. Then follows a comprehensive bibliography. "Excretory urography alone may be instanced as a procedure which has revolutionized many conceptions of physiology and pathology alike." Discussing transplantation of ureters into bowel, it is stated that oblique submucous implantations are based largely on the teaching and practice of our own R. C. Coffey, his methods being described and illustrated. Modern methods of examination and treatment are applied to the diseases of the urinary tract, with an abundance of enlightening illustrations. Many useful suggestions are offered.

A DIABETIC MANUAL FOR PRACTITIONERS AND PATIENTS. By Edward L. Bortz, A.B., M.D., F.A.C.P. Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, etc. With a Foreword by George Morris Piersol, B.S., M.D., F.A.C.P. Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Illustrated. 222 pp. F. A. Davis, Philadelphia, 1936.

The author states there are now approximately one million diabetics in the United States and another one and one-half million individuals destined to develop the disease. The treatment of no other disease requires so much cooperation between doctor and patient and the latter is chiefly responsible for proper carrying out of instructions

"Diabetes responds promptly to treatment and need not shorten life." After chapters on development of the disease others consider pregnancy, dental care and surgery. Instructions are given for the administration of insulin. Attention is directed to obesity and its evils with instruction for its control. Due stress is laid on diet with chapters on its therapy, menu planning, diabetic recipes. The caloric values and costs of foods are discussed. A diabetic patient should familiarize himself with facts such as are contained in this volume.

ETIOLOGY AND TREATMENT OF HEMORRHAGE OF NOSE AND THROAT: PRACTICAL CONSIDERATIONS IN RELATION TO OTOLARYNGOLOGY. Henry M. Goodyear, Cincinnati (*Journal A. M. A.*, Aug. 1, 1936), states that reservation must be given in measuring the true value of thromboplastic agents. Ovarian extract is worthy of a trial in hemophilia; however, blood transfusions are the most reliable. Blood transfusions have no value in purpura haemorrhagica; splenectomy may offer the only relief. Hemorrhagic telangiectasia responds best to the chromic acid bead. Ten per cent cocaine followed by 50 per cent solution of silver nitrate is most satisfactory in hemorrhage from the anterior nasal septum. Gauze packing in the region of the anterior wall of the sphenoid is effective in bleeding from an injured sphenopalatine artery. In intractable nasal hemorrhages the external carotid artery should be ligated. Insufficient attention is given to adenoid bleeding at the time of operation. No adenoid operation should be considered complete without retraction of the soft palate and direct examination for bleeding points. Since all branches supplying the tonsils are from the external carotid artery, this would be the vessel ultimately to be tied in an emergency. In suppurative cellulitis following such illnesses as scarlet fever, it is the internal jugular vein and not the carotid vessels which is eroded. Retropharyngeal abscess is relatively infrequent and always a potentially dangerous complication, as is attested by the number of details reported. The pus should be aspirated first and then the incision should be made. Immediate pressure over the carotid artery, on the side of the abscess at the time of bleeding, may save the patient during the preparation to ligate. Bleeding from a tonsillar infection with moderate intermittent attacks of bleeding, with no definite pharyngomaxillary symptoms, justifies the removal of the tonsil and a search for the bleeding point. When a sudden severe expulsion of blood occurs in the presence of a retropharyngeal or peritonsillar swelling, either before or after incision, no time should be lost in ligating the common carotid artery on the same side, for at any moment the hemorrhage may recur, with fatal results. When the pharyngomaxillary space is distended with pus it can be drained by incision anterior to the anterior tonsillar pillar, or by incision posterior to the posterior tonsillar pillar. Radical removal of the tonsil is justified after incision of a peritonsillar abscess when little or no pus is found and general distress and neck complications increase rather than diminish. Drainage of a hidden pocket may be thus established. Back circulation may occur through the external carotid after ligation of the common carotid artery. When incision is made for ligation it is the internal carotid that usually comes into view, before the external carotid is located. Bifurcation often occurs high, even about the angle of the jaw.

SURGERY OF SYMPATHETIC NERVOUS SYSTEM: CLINICAL LECTURE AT KANSAS CITY SESSION. James C. White, Boston (*Journal A. M. A.*, Aug. 1, 1936), centered his remarks on the physiology and surgery of the vasomotor nerves. Sympathetic neurectomy in the treatment of megacolon is consistently effective in suitable cases of Hirschsprung's disease. On the other hand, presacral neurectomy is not a sound method for improving the function of a paralyzed bladder. This has been shown both by disappointing clinical results and by the recent work on the physiology of micturition.

TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Kephrine Hydrochloride. Kephrine hydrochloride is the monohydrochloride of a base resembling epinephrine (*laevo*-methylaminoethanolcatechol) but differs in that kephrine possesses a ketone group in place of the secondary alcohol group of epinephrine. Kephrine hydrochloride acts by constriction of the blood vessels. In comparison with epinephrine its action is less powerful, but the effects are more lasting. It is used only locally and will, as a rule, arrest capillary bleeding within two or three minutes. The hemostatic effects usually persist from one to two hours. Kephrine hydrochloride is marketed in the form of powder and rectal suppositories; bandages and gauze impregnated with kephrine hydrochloride are also supplied. Campbell Products, Inc., New York.

Kinney's Cod Liver Oil Concentrate Liquid. A concentrate of the unsaponifiable fraction of cod liver oil dissolved in sufficient cod liver oil to give the desired potency to the marketed product. It has a vitamin A potency of not less than 60,000 units (U. S. P.) per gram and a vitamin D potency of not less than 8,500 units (U. S. P.) per gram. It possesses the therapeutic properties attributed to the vitamins present in cod liver oil. It is supplied in the form of Kinney's Cod Liver Oil Concentrate Capsules, 3 minims, and Kinney's Cod Liver Oil Concentrate Liquid, Vials, 5 cc. Health Products Corporation, Newark, N. J. (Scientific Sugars Co., Indianapolis, distributor.)

Diphtheria Toxin for Schick Test, Diluted Ready for Use—Mulford. A diphtheria immunity test (Schick Test) (New and Nonofficial Remedies, 1935, p. 408) prepared by diluting diphtheria toxin with a sodium chloride-borax-boric acid buffer solution containing 0.1 per cent of Witte's peptone, so that 0.1 cc. contains a Schick test dose. Marketed in 1 cc. vials (10 tests); in 5 cc. vials (50 tests); and in 10 cc. vials (100 tests). For the control test a diluted diphtheria toxin inactivated by heat is supplied in 5 cc. vials representing sufficient material for fifty control tests. Sharp & Dohme, Inc., Philadelphia, Pa.

Insulin—Mulford, 100 units, 10 cc. Each cubic centimeter contains insulin (New and Nonofficial Remedies, 1935, p. 227) 100 units. Sharp & Dohme, Inc., Philadelphia, Pa.

Allergenic Extracts—Lederle. The following additional allergenic extract—Lederle (New and Nonofficial Remedies, 1935, p. 28; The Journal A. M. A., July 11, 1936, p. 130) has been accepted: Alfalfa Allergenic Extract—Lederle. Lederle Laboratories, Inc., Pearl River, N. Y. (J. A. M. A., July 25, 1936, p. 283.)

PROPAGANDA FOR REFORM

Use of the terms "Sterile," "Sterilize" and "Sterilization." The Council on Pharmacy and Chemistry has adopted the following statement and authorized its transmission to the Food and Drug Administration of the U. S. Department of Agriculture:

The Council on Pharmacy and Chemistry has formally gone on record as disapproving of the use of the terms "sterile," "sterilize" and "sterilization" in a bacteriologic sense other than in their correct scientific significance; i. e., meaning the absence or destruction of all micro-organisms. These terms are not relative and to permit their use in a relative sense not only is incorrect but opens the way to abuse and misunderstanding. It is questionable that there are any chemical agents tolerated by the skin which will produce sterility, although there are some which will reduce the bacterial flora of the skin to such an extent that they may properly be described as disinfecting agents. For such agents there is no objection to the use of the terms "disinfecting," "bactericidal" and "bacteriostatic."

A similar statement has been adopted by the Committee on Foods in reference to the use of the terms "sterile," "sterilize" and "sterilization" in food advertising. (J.A.M.A., July 4, 1936, p. 38.)

Annual Meeting of the Committee on Foods. The following were among the subjects considered at the annual meeting of the Committee on Foods: The Committee discussed at considerable length the question of the scope of its work. It was decided that the list of accepted foods be examined to determine which food products should continue to be considered as falling within the purview of the Committee. A statement of the Committee's action will be published shortly. The Committee also voted that the period of acceptance shall be limited to two years, at the end of which time products shall be considered again. The Committee discussed at considerable length the problems involved in the addition of vitamin preparations to foods. It was voted that the policy of the Committee in general shall be as follows:

"If in exceptional cases a general need for vitamin (or inorganic salt) intake above that afforded by the usual mixed diet of common foods is indicated, the Committee shall require (a) acceptable and convincing evidence that there is a need for enhanced amounts of vitamins (or inorganic salts) in the general food supply; and (b) that the food vehicles proposed for the distribution of such vitamins (or inorganic salts) are suitable and appropriate."

In line with the foregoing policy it was voted that manufacturers of accepted vitamin D fortified products including breads and cereals be requested to produce evidence meeting points (a) and (b) above before a date to be specified. The Committee discussed the possibility of preparing suitable tables to give the value of foods as sources of the vitamins. The Committee again considered the claims for vitamin E and concluded that no adequate scientific data are available which establish the role of vitamin E in human dietetics. The following addendum to the decision of the Committee regarding the labeling of special purpose foods was presented by the referee and adopted by the Committee:

"In the case of water packed fruits and vegetables the designation 'Special Purpose Food' will not be required provided it is replaced by a statement to the effect that this food or these foods are prepared with special reference to the needs of invalids and have no added salt or sugar. The vitamin and mineral content should be stated on the label as well as the calories per gram or ounce and the grams each of total carbohydrate, protein, and fat per hundred gram weight of fruit or vegetable and liquid."

(J. A. M. A., July 4, 1936, p. 39.)

Doctors and Diaplex. In a recent trial the federal government was defeated in its attempt to prove one Horace Wayne Pierce, manufacturer and shipper of an herb tea called "Diaplex," guilty of fraud under the criminal clause of the Food and Drugs Act. Diaplex, the dried leaves and stems of Atriplex canascens (salt bush), is offered as a specific for diabetes. The advertising exaggerates the dangers of insulin and dwells on the simplicity of taking Diaplex. The government lost its case principally because of the premature enthusiasm of a physician and a layman for the nostrum, who admitted the writing of complimentary and optimistic letters to the manufacturer. Both witnesses testified nevertheless that they had been misled, as the herb tea turned out to be worthless in their later experience. At the trial Pierce claimed that he depended on these letters as expressions of opinion from persons competent to judge the effects of his treatment. In the face of this testimony, the jury was not convinced of the fraudulent intent, which, under the law, must be shown in all criminal cases involving curative claims for medicines. Endorsements given by physicians to "patent medicine" vendors, either carelessly or wilfully, are invariably distorted into bait for the uncritical patient as a means of luring him away from proved methods of treatment. The case of Diaplex should serve as a warning to the physician against haste in judgment of therapeutic results. (J. A. M. A., July 4, 1936, p. 42.)

Therm-A-Mode Not Acceptable. Therm-A-Mode, manufactured by Therm-A-Mode, Inc., Orange, N. J., is a blanket intended for the induction of diaphoresis and also for fever therapy. According to the firm it is called "infrared Therm-A-Mode for fever therapy." It is claimed to have a heating range of from 90 to 140 degrees F. The Therm-A-Mode is claimed, by the firm, to be of value in diseases which are due to pathogenic organisms or to an accumulation of toxic substances within the body, and to have been used successfully in relieving pain. Its therapeutic value is also advanced for shock of any kind and for eclampsia. The Therm-A-Mode is said to induce diaphoresis more effectively than other methods, and its use is advocated to prevent coma and convulsions and to treat common colds, influenza, acute bronchitis, pneumonia and other acute respiratory infections. It is also said to be of value in promoting sleep and in reducing systolic blood pressure. The Council's investigator reported that the blanket is heavy and its weight uncomfortable to the patient. The chief objection to its use for fever therapy is that the patient's temperature rises very slowly, even when the maximum current is applied. The Council has not been furnished with convincing evidence of the safety of the blanket. As a means of inducing a high temperature, especially if this is to be maintained for a number of hours, this device is regarded as ineffectual and unpractical. In view of this, the Council voted not to include the Therm-A-Mode electric blanket in its list of accepted devices. (J. A. M. A., July 11, 1936, p. 130.)

BCG As a Tuberculosis Preventive. There are a number of reasons why the use of the living vaccine known as BCG, twelve years after its first use in France, should still be discussed and debated among those concerned with the prevention and cure of tuberculosis. It has never been conclusively demonstrated that the use of this vaccine is an effective means of preventing human tuberculosis. The greatest value of BCG is in cattle but, in view of the variation in reported results, one could scarcely conclude that it is justifiable to use it universally in man. Experiments in animals have shown little value for the oral method as a means of prevention. The subcutaneous method and the intracutaneous method are variable in their results in animals. The intravenous method of vaccination has proved to be the most efficacious in cattle, although this also varies within wide limits. The greatest difficulty has been to determine how long the period of increased resistance lasts. This also apparently varies in many instances and is often of short duration; that is, under one year. Many different cultures of BCG have been sent to the United States in the hands of various persons, laymen and physicians alike. Different workers have used cultures obtained at different times from the French laboratories. The result is variation in the experimental work that has been carried on, for little has been done to check to the constancy of the characteristics of these strains. The results of these studies have been published from time to time. They are among the best attempts in the world at adequate control comparisons, but one can only conclude, after studying them, that they do not provide conclusive evidence for general use of the vaccine. Sufficient arguments can, however, be presented for the use of this vaccine in groups for which little can be done by other methods, as for example the Negroes in the South and the Indians on the reservations, where the present machinery is not adequate in view of the peculiar circumstances surrounding their condition. That there is no conclusive proof of the efficacy of the vaccine in man is in part due to the short duration of the experiments and to the small number of those involved in the carefully controlled experiments as well as to the inadequacy of the accurate data on the control groups. (J. A. M. A., July 11, 1936, p. 132.)

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PROBLEMS CONFRONTING US TODAY*

D. F. Bice, M.D.
YAKIMA, WASH.

It seems that it devolves upon each outgoing president to leave his impresisons of a year to the members assembled at each annual meeting. In attempting to compile what I believe to be the greatest present needs of our Association, I would tabulate them as follows: (1) a change in our by-laws, (2) a president-elect, (3) a full time secretary with the necessary increase of annual dues to care for such an officer, (4) a more thorough study and understanding of the problems of today, especially as regards the impending possibility of the establishment of state medicine.

I recommend to the Association a president-elect, so that the executive officer may be thoroughly familiar with the needs of the organization upon assuming the duties of office. Otherwise he spends the first few months familiarizing himself with his duties. I believe the president-elect should be a trustee before he assumes the office of president.

I would further recommend that this Association elect a full time secretary, preferably a medical man who has a complete understanding of the needs of organized medicine. This office should not be handicapped by a man with a private practice. The greater bulk of the president's work could be taken over by a man who could devote his full time to the duties of the secretary's office. I feel that the logical action would be to combine into one officer the chairmen of the Public Relations Committee and Public Health League and secretary of the Medical Association. A man with the ability to competently fill these three offices would be one capable of visiting each component society at regular intervals and keeping them cognizant of all matters relative to organized medicine. I am thoroughly convinced after one year as your president that this is one of our greatest needs, and would prove eventually to be our greatest asset.

I realize that this means the increasing of our annual dues. During the past year I communicated with all of our county societies and practically every one of them voted to increase the annual state dues $7 per member. That amount would bring us approximately $10,000 annually. If we would increase ten dollars per member we would have an ample amount to carry out this program. Some of you may think this is too much, but are you aware of the fact that each member of an organized union, on a salary of $5 to $8 per day, is compelled to subscribe at least $36 annually to his organization? If the man on $8 per day can pay into his union $36 per year to protect his rights as a workingman, it seems that we members of the State Medical Association could afford to pay $10 per year to protect organized medicine. This is something for you to think about, and something that you should act upon. So much for the operating activities of the Association.

I recommend to the incoming president that the number of standing committees of the State Medical Association be reduced very materially. There are at present nineteen committees, and of that number I am sorry to say only about five have done any active work for our Association during the past year. There has been some very intensive work done by a few of these committees. These men merit the praise of our whole Association, and it gives me a great deal of personal pleasure and satisfaction to thank them for their interest in their profession and in their Association. These committees should be continued and encouraged in their splendid work.

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* President's Address read before Forty-Seventh Annual Meeting of Washington State Medical Association, Yakima, Wash., Sept. 1-2, 1936.

I wish now to spend a few moments on our profession. I want to point out to you why organized medicine as a profession should continue, in contrast to state medicine as a job. I want to bring to your attention the danger that our profession is in today due to the intensive demands of certain groups and parties to force social medicine upon us.

If you are a follower of the times, you will have noticed how this socialistic idea is encroaching upon us. And if you have studied the subject thoroughly, you will have seen that in practically every country or state where social medicine has been legislated, it has been introduced as a panacea for some economic upheaval. In 1883 Bismark forced it upon the German people to allay their discontent as something in lieu of adequate wages. In 1911 Lloyd George introduced it in England as a panacea against social disturbances. During the past few months it has been introduced in Canada. Several other countries in the meantime have had it thrust upon them, and in none of these countries has it proven a success. I want to convince you members that social medicine is a political football. During the past few years politics has usurped practically every vocation and profession, until today the tendency is toward collectivism versus individualism.

I need not call to your attention the harm that would result to organized medicine today, if we allow our profession to be dominated and supervised by political bureaucrats. You are all well aware that medicine would immediately recede a hundred years, if the personal incentive and initiative were to be withdrawn from our work, as would certainly be the case if we were to be placed upon salaries.

In order to establish social medicine there must first be some acquiescence on the part of our physicians. Unfortunately there are a few doctors in nearly every community who are not making more than a mere salary, and who would be satisfied with a change to a salary. But if the greater part of us would stand pat, and think and talk against this menace to our profession, it can gain very little headway. Cooperation and organization can beat any legislation, if we will get together and oppose this movement.

In order to operate smoothly a government, it is first necessary that the various groups making up our modern society have certain individual functions to perform, and the functions of the different groups should shape themselves together to form one great nation. The fundamental function of the medical profession is to relieve suffering and to prolong life or, economically speaking, to maintain or raise the health and efficiency of our citizens to the highest possible level at the least cost in the expenditure of time and money. No other group in society has striven more arduously or unselfishly to perform these functions efficiently. And I may add that no other group has come more nearly succeeding than has medicine. So I feel that, if there is to be a change in the form of medical practice, the burden of proof for the necessity of such a change rests upon those individuals or organizations who are urging such a move. The proof for this must be concrete evidence for the necessity, and not merely theories and ideas of a group of sentimental philanthropists or a few greedy politicians.

The three classes most vitally affected in shifting from organized to social medicine are not in favor of such a change. I refer to the physicians, the taxpayers and the general public. The physicians are well aware of the untold injury that medicine would suffer in the unpreventable retrograde of our standards. The taxpayers are just as well aware that taxation would become unbearably burdensome, and the general public very well knows that the type of efficiency in medical care would not be what it is accustomed to today. So that leaves the question, "who wants state medicine?" In our country today the advocates of this form of medical practice are social workers who are concerned in perpetuating their jobs; philanthropic foundations, governed by paid social workers; and politicians, wishing something to offer for the votes it will bring. So these, then, are the protagonists of social medicine: politicians, philanthropists and social workers. Are we as physicians going to tolerate our profession to be dominated, polluted and supervised by any such organizations as these just to satisfy their own personal greed?

Had I the time, I could bring to your attention the many evils incident to such a change. Or I could demonstrate to you the many examples of inefficiency that now exist in our state charity institutions, for they are already an example of state medicine in a modified way. Or I could prove to you that the enormous cost of such a system would be prohibitive. From a practical standpoint it is just as visionary today as is that much touted old age pension idea that originated in Long Beach, California. The proponents of social medicine feel that we should have a change. I believe that most of you will agree that organized medicine possibly has its faults. But I am thoroughly convinced that social medicine is not the solution for any now existing evil.

What we are now most vitally interested in is how can we best combat such a movement. If this monster were just an imaginary vision, I might say that, if the people were properly educated, they would not allow such legislation to be forced upon them. Or I might argue that by proper distribution of the wealth we would have no need for such a system. I might censure our colleges and universities for allowing socialism to be taught. I might even criticize our government for allowing, and I might safely say fostering, the communistic ideas that are gaining such an inroad in this country today. But to carry out such a program as this would require time. What we as physicians must do is to act today. Due to the modest inactivity of the doctors in the past few years, and because of the eminent danger of vicious legislation in the near future, I feel that our most efficient weapon of defense today lies in our choice of the proper legislators, both state and national. Choose legislators who have the stamina to insist that the Government cease its interference with private professions and vocations. Choose as your representatives men or women of brains. All we ask for is a square deal and a man of average intelligence can usually be reasoned with.

I have told many of you at former meetings what an assinine communistic mob some of our counties sent to our state capital two years ago to make our laws. I hope that same group will not be duplicated again in November. I feel it quite a coincidence that I am privileged to give you these remarks and suggestions today, when one week from today you are privileged to go to the polls and elect another set of office seekers. I admonish you to study these candidates. Interview them and find if they can be trusted to give medicine an even break. Friendship is not sufficient. We must have support, even though we must turn down friends to get it. I am reminded of the lines by James Russell Lowell: "soft-heartedness in times like these, shows softness in the upper story."

Don't let us a few years hence be sorry that we were laggards today in the proper discharge of our public duty. Go back to your homes from this meeting, resolved to go to the polls one week from today to vote for the man who wants constructive, not destructive legislation, the man you can trust with your profession, for you most certainly are placing your chosen life's work in his hands. If he cannot be trusted, I fear that all of us in the near future may think of these lines:

"Alas, if all men were but wise
And would be good as well,
This earth would be a paradise
Where now 'tis mostly hell."

THE SPECTRE OF STATE MEDICINE*

J. H. CRAMPTON, M.D.

LEWISTON, IDA.

First I wish to take up the Woman's Auxiliary, because of the objection which has been raised to this organization by various doctors of the state. It would seem that several of them deem this organization unnecessary. In fact, this faction has assumed, or very nearly so, a majority of the members of the State Association. How can a man justify his standing on this question, when the auxiliaries of the various states have accomplished so much? This particular State Auxiliary is too adolescent to accomplish much as yet. Also, the main reason for the failure of this auxiliary to have accomplished anything of great importance, is the lack of interest of the doctors. You who complain of this auxiliary are the ones who are causing the very thing of which you complain.

Of national interest, in Pennsylvania two bills were brought up, one to give the chiropodist the right to practice surgery of the feet, the other requiring the medical doctor to have a chiropractor's license to practice surgery on the spine. The Woman's Auxiliary to the State Medical Society was directly responsible for the defeat of both of these bills, or at least the Society gave the Auxiliary credit for their defeat. The Woman's Auxiliary to Wisconsin State Society closed all quack advertising over the radio. The chiropractors' wives have formed a National Auxiliary of 10,000 members and have applied for a charter in the American Federation of Labor.

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*President's Address, read before the Forty-fourth Annual Meeting of Idaho State Medical Association, Boise, Ida., Aug. 31-Sept. 4, 1936.

The late Dr. Tate Mason, President, and Dr. Dean Lewis, Past-President of the American Medical Association were strongly in favor of the Auxiliaries to Medical Societies, national, state and county. Surely these men, after a study of this question, must be a guide for us in the future and so I ask you all to give this question your serious consideration.

STATE MEDICINE

If Thomas Carlyle, with his sharp eye and caustic comment, was alive today, he would call us physician's not economists but respectable professors of a dismal science, for we are surrounded and beset by economists, both false and true, and the former say we refuse to take our own medicine. But as I see it today, the way the false ones try to make us take our own medicine, that medicine is our only hope.

At the rate they are trying to choke state medicine down our throats, hope will soon be separated from our souls. The average American citizen will realize too late, I am afraid, that state medicine, federal control and lay dictation are synonymous with medical destruction. There are a number of factors which have paved the way for this steady, insidious, determined encroachment of state medicine and lay control. To a certain extent the health specialist, who can see no path but his own and dressed in a little brief authority for a time, could see only other specialists and none of them, not even the Departments of Public Welfare of the states or the Departments of Public Health of the United States, could see or recognize the greatest person for individual health and happiness, the family physician or general practitioner.

There seem to be better things looming through the horizon. Thanks to the geniuses among the specialists we may escape from the sad thing of having the "tail wag the dog." This error in mechanics has cost the medical profession very dearly and, if I am not mistaken, before it ends will cost the general public more dearly. In the gap between the so-called specialists crept the propagandists for state medicine with their tentacles for lay dictation, irresponsible systems, federal control, and last but not least, overwhelming taxation. Ignoring the family physician who was one of the most important factors in building up the healthiest of civilized nations, the propagandists have taken as a table of weights and measures for medical economics, the standards prevailing in other countries which was about as apt as measuring cloth with a quart cup or cornmeal by the yard, especially when the breakdown of state medicine in Europe has been a detriment to the public and the practitioner as well.

In Europe the physician was called upon to work long hours, be the sheave and pulley, and thus become the most learned group of underpaid laborers the world has ever known. Are we headed for similar underpaid toil and sacrifice, not only involving physicians but also dentists and hospitals, as well as those indicated works of charities, clinics for the destitute and deserving paupers?

What is a pauper? The dictionary says, "it is a person destitute of means, except such as are received from charity, more specifically one who receives aid from public poor funds." In Idaho, if one has any personal property or real estate, he is not a public charge, unless he gives these to the county or state. If an accurate canvas were made of medical service given free in this state, I doubt if five per cent would classify in that definition.

More and more the scope of semiincomed individuals for gratuities has extended until this drain upon physicians and hospitals has become almost unbearable, and in direct ratio to the burden upon the medical profession, it has increased the interest of the nonmedical man of wealth or of political influence, in the exploitation of this great science, fundamental to individual and national health and welfare, and has opened a great field for his interference and command. As a result for some time we have had the United States Department of Public Health which was fine, but lately we have had State Departments which are under Federal and State control, and also County Health Units under the same control which are in my judgment just a beginning wedge of state medicine. We also have dozens of foundations, county and state clinics, and last but not least, Parent Teachers' Associations which are going into medicine, dictating to us, if you please, that we must do this or that for a certain child for a certain price, usually about ten to fifteen per cent of our set fee. These organizations assume to tell us that the parents of these children are paupers.

There is no question but the test of the physician today is more intricate than ever before from the fact that every bit of progress in medical research has brought in more aids to medical efficiency and a corps of attendants to wait upon him. The technic of modern medicine demands, and has hundreds of sentimental, semimedical workers, not fully trained as physicians to practice real medicine, and too much trained to admit they are untrained. State medicine looks to them like a mecca.

The general attitude of the modern family to sickness in its midst has come to insist upon high priced hospitalization for any sick member, even though it cannot be afforded by the individual family of moderate income. As a result, hospital bills too frequently go unpaid, so thus the high cost of sickness is laid at the doctor's door and plans to get it back literally out of his hide are set about by propagandists, backed by lay philanthropists of very much mistaken aims and judgments.

Physicians have always been willing to give their services where conditions indicated, and no doubt through all time to come will continue to do their just part. I do not think there is now, ever was or ever will be a just and honest practitioner of medicine worthy of that name who is willing to let the so-called business men of his own or neighboring community, or the political blood-suckers, tell him when, where and how he is to give of his skill, his health, his means and more especially his wisdom.

That, in my opinion, is what the so-called Security Act, as it affects the public welfare of the State of Idaho, is trying to do to us. Also, medical bureaucracies, lay and politically dictated, and controlled schemes of medical economics are setting out to do the same. In closing, I ask, are we going to be free in our greatest of professions. For one I am against federal, state or lay control of medicine of any type and I hope the majority are of the same opinion.

Physiologic Effects of Correction of Faulty Posture. Louis B. Laplace and Jesse T. Nicholson, Philadelphia (*Journal A. M. A.*, Sept. 26, 1936), state that twenty-six subjects having postural defects of the kypholordotic type were studied with respect to the physiologic changes produced by the correction of their faulty posture. The immediate effects were in general entirely comparable to those observed after one year of corrective exercises. In the corrected posture the diaphragm was not always relatively elevated as is generally believed, nor was the heart always more transversely placed. The diaphragmatic excursions were either increased or decreased, for reasons that are discussed. The vital capacity was generally increased, although flexibility of posture was requisite for optimum results. Oxygen consumption was variable. Pulmonary ventilation was generally increased. Circulatory efficiency. as judged by constancy of blood pressure and pulse rate, was generally improved; in two cases the correction of posture was able to prevent hypostatic congestion and syncope. It was concluded that the results of correcting faulty posture differ widely between individuals, irrespective of the grade of the defect. A correct posture appears to be an appreciable advantage to circulatory and respiratory function in the majority of persons, but in some a postural defect may be a compensatory mechanism which it is inadvisable to disturb.

ACUTE CORONARY THROMBOSIS

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Heart disease leads all the rest as a cause of death in middle and later life. In New York, in one thousand heart cases, Wyckoff and Lingg[1] reported 40 per cent as having coronary disease, not specifying thrombosis. The frequency of coronary occlusion among certain types is becoming alarming. The common type in men is the able, energetic, overworked individual, laboring under high tension and responsibility, not rarely robust, in the prime of life, and often foremost in the business and professional world.

The apparent increasing frequency of coronary thrombosis may be due to recent knowledge of the diagnosis and in part to general lengthening of the span of life. In this country the disease was rarely recognized before 1912. But since his classic paper given at that time, Herrick[2] has been constantly informing the profession concerning the diagnosis of coronary occlusion. To him is chiefly due our knowledge of the disease in this country. Both coronary occlusion (unless sine dolore) and angina pectoris were until lately rarely seen in our charity hospitals, although the homes of arteriosclerosis. Since the depression, with a different clientele, painful coronary disease has become more common in these institutions. The coronary pain syndrome appears to be favored by a sensitive sympathetic nervous system and is not fostered by the use of the pick, shovel and axe.

The relation of sex to coronary thrombosis is remarkable. In eighty-three autopsies (Parkinson and Bedford), seventy-two subjects were males. This is in accord with the very interesting findings of Willius[3] on three hundred and seventy cases of coronary occlusion observed over a period of years. The incidence in his cases was in the ratio of seven men to one woman. The higher incidence in men might be partly explained by the higher incidence of marked arteriosclerosis in them. Edwards stated that "eighty per cent of cases of marked arteriosclerosis occur in men, and it appears in women ten years later." Willius finds that this is also true of coronary thrombosis. In the seventh decade there were 8 per cent of cases occurring in men and 17 per cent in women.

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[1] Wyckoff, J. and Lingg, C.: Statistical Studies Bearing on Problems of Classification of Heart Disease; Etiology in Organic Heart Disease. Ann. Heart J., 1:446-470, April, 1920.

[2] Herrick, J. B.: Clinical Features of Sudden Obstruction of Coronary Arteries. J. A. M. A., 59:2015-2020, Dec. 7, 1912.

[3] Willius, F. A.: Life Expectancy in Coronary Thrombosis. J. A. M. A., 106:1890-1894, May 30, 1936.

Sudden death from coronary thrombosis is almost twice as common in woman but, if she survives the attack, her chance of ultimate recovery is better than in men convalescing from the disease. The greater number of cases in men occurs in the sixth decade.

Hypertension is a factor since it leads to arteriosclerosis and coronary disease. In a clinic, treating about as many males as females, Blackford[4] reported on two hundred and two hypertensive patients observed over a term of ten years. He found that (1) hypertension was twice as frequent in women, (2) the mortality over a period of ten years in women was half that in men, (3) more than half the women lacked hypertensive symptoms when first seen, the reverse being true in men, (4) the higher incidence in women was chiefly due to the much greater number of them that developed hypertension in the later decades. This may account for the later incidence of coronary thrombosis in women noted by Willius.

However fascinating mass statistics concerning disease may be, they have little value to an individual patient. We are unable to pick the lucky number. In a patient with acute coronary thrombosis we are inevitably ignorant of the precise degree and extent of coronary involvement, the exact size and site of the infarct, the presence of other complicating lesions, and the inherited biologic stamina of the individual. In spite of statistics, the prognosis for an individual under existing conditions has about as much mathematical certainty as betting on a horse race.

SYMPTOMS AND DIAGNOSIS

The symptoms of coronary thrombosis vary in intensity from nearly nil to sudden death. Recovery is a matter of the degree of the insult, the age of the patient, the existing state of the heart, the previous condition of the patient and his myocardium (and the grace of God), none of which may be apparent at the onset of a seizure of acute coronary thrombosis. We have observed in three instances an attack from its onset to finish within a few minutes. In one case the patient was roaring with laughter at one moment, gasping in agony in the next, and a corpse in the space of five minutes. The sudden gasping for breath, attempts at sitting up, if in bed, the agonized facies rapidly assuming a deathly greyness and the imperceptible pulse are characteristic. The seizure suggests the beginning of fatal pulmonary embolism. We have also been present in six other cases when the acute episode began. Morphine was given instantly and none resulted fatally.

The onset of an attack of coronary occlusion is so variable that a typical attack does not occur. Atypical episodes are rather typical of this disease. Doubtless many more cases exist than are recognized, either because medical aid is not sought, or a correct diagnosis escapes the doctor. Attacks do not usually follow emotional excitement or overexertion, more commonly the case in angina, but happen at any time and without apparent exciting cause. The patient may be at his usual work, resting, reclining in bed or asleep when he is hit by the sudden attack.

In paroxysms of average severity there is intense pain in any part of the sternal region, less often in the epigastrium and more rarely in the precordium. It is either localized or radiating and may be accompanied by nausea, vomiting and abdominal distention. Severe dyspnea may precede or usher in an attack, or rarely take the place of pain. It has usually been our experience that agonizing attacks of pain of coronary origin are accompanied by a more or less speechless immobility. Patients in agony from either seizures of angina pectoris or acute coronary thrombosis commonly lie motionless, and questions either get no reply or a shake of the head or the subject answers in gasping whispers.

Until recently we have believed that one could nearly always exclude a diagnosis of acute coronary occlusion, if the patient was very noisy or threw himself about violently. We now acknowledge our mistake. Within a week a patient with well marked coronary thrombosis was seized with agonizing "cramps" in the upper sternal region, the same sort of pain radiating into both shoulders. He spent a whole night, before we first saw him, pacing the floor of his room, lying down on the floor and getting up again, pressing his chest against a sofa, and performing an unbelievable number of athletic feats. While suffering great shock later, he appears to be on the way to recovery.

The pain of acute coronary thrombosis rarely begins as a vague sternal discomfort persisting off and on for days. It more often gradually or suddenly becomes unbearable and persists for hours or days continuously, unless relieved by morphine. Occasionally patients suffer severely for one or more hours, with complete intermissions, or with slight remaining discomfort. The pain is more often in the midsternum, radiating to right and left.

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[4] Blackford, J. M. and Wilkinson, J. N.: Hypertension; Study of 202 Cases Followed for Average of 10 years, with Remarks on Causes and Treatment. Ann. Int. Med., 6:54-59, July, 1932.

The general character of the pain is one of constriction or oppression, as in angina pectoris. Patients have variously described it as "pressing," "crushing," "squeezing," or as a "feeling of weight," as "strangling" or "choking," and occasionally as "cramping" or "burning." Radiation of pain is much as in angina, perhaps more often to left shoulder and arm, neck, jaws, scalp and to left of midback. Radiation to right shoulder and arm, or both shoulders and arms is not rare, with numbness and tingling in the arms or fingers in mild attacks.

At the onset of an episode of coronary occlusion, of slight or moderate degree, there may not be much change in the pulse except an increased rate, nor in the blood pressure. The blood pressure may even be augmented, owing to pain, for some hours. In more severe seizures the pulse is rapid and feeble, and the blood pressure falls more or less rapidly. In alarming attacks there are shock and dyspnea, with cold sweats, pallor, feeble, distant and sometimes irregular heart sounds, agonizing pain, and often sudden fall of blood pressure. This is not by any means constant. In some cases the blood pressure is elevated for hours and then it may fall from a systolic pressure of 175 mm. to 110 mm. within twelve hours, or from about the same point it may gradually decrease to 100 mm. or less within a few days. Vomiting or nausea and great distention with gas are frequent. The really pathognomonic sign, a pericardial friction rub, is present in 15 per cent of cases. It is commonly not heard until a few hours after the onset of the attack, perhaps not till the next day or two, and is of short duration.

The milder attacks of coronary thrombosis are apt to be overlooked. Even doctors, suffering from such seizures, are hard to convince that the episode is of importance and of cardiac origin. There may be only a feeling of vague sternal discomfort, without any change in the pulse or blood pressure, and with perhaps a slight numbness or tingling in one of the arms or hands. A previous history of hypertension, attacks of angina pectoris or the existence of myocardial disease favor the diagnosis of coronary occlusion in mild and doubtful episodes. Antecedent angina pectoris is noted in about 25 per cent of cases of coronary thrombosis.

But the truly all important diagnostic symptoms and signs of acute coronary thrombosis are found within twenty-four to forty-eight hours after the onset of the attack. These are fever and leucocytosis. We wish especially to stress this feature of coronary occlusion because it is the basis of clinical diagnosis. The temperature of the patient and his white cell count should always be taken every day after the attack until they become normal. In our experience we have yet to see a case of acute coronary thrombosis which was not followed by fever and leucocytosis, and usually accompanied by a definite fall in blood pressure.

The fever begins within twenty-four to forty-eight hours of the onset of the episode. In average cases it lasts from two to six days, the temperature ranging from 100 to 102 degrees F. In critical cases the temperature may reach 104 degrees F., the fever persisting for weeks. Likewise in average cases the white cell count varies from 12,000 to 15,000, with a percentage of from 80 to 90 per cent polynuclear cells. But in grave cases the leucocyte count may reach 30,000 to 40,000 and leucocytosis may persist for a week. The taking of temperatures should always be per rectum (Levine). Fever and leucocytosis are also valuable prognostic criteria as they indicate approximately the size of the infarct and the degree of toxemia from its necrosis and consequent absorption.

Moist and sibilant rales often accompany the coronary seizure. They may be in the base, or heard throughout the lungs with emission of pink-tinged sputum in acute pulmonary edema. Dyspnea may be extreme.

Examination of the heart, after the acute episode is over, may disclose rapid, feeble sounds, especially a weak first sound at the apex, giving a characteristic tick-tack rhythm. A functional mitral murmur is not uncommon, from dilatation of the heart. Dilatation of the left ventricle with enlargement of the heart may come on quite rapidly after severe attacks, accompanied by heart failure, swelling and tenderness of the liver, which has been mistaken for an abdominal tumor. Gallup rhythm and almost any of the arrhythmias may appear within a few days of the seizure. Sugar is not rarely found in the urine in nondiabetics and should not in itself lead to a diagnosis of diabetes. Sweating is often profuse during convalescence. This leads to marked oliguria but this should not cause alarm, if the urinary specific gravity is correspondingly high.

DIFFERENTIAL DIAGNOSIS

Angina Pectoris. A vague, persistent pain or discomfort about the sternal region in a person of thirty or over should at least bring to mind the possibility of coronary occlusion. Many of these cases are merely suggestive and suspicious before careful study. The classic description of angina pectoris is at times quite misleading. Thus McCrae's Osler (1935): "The paroxysms last from several seconds to a minute or two." We have often seen attacks of angina pectoris last for fifteen or thirty minutes and they might have continued longer if relief had not been given by morphine after nitrates had proved useless. We consider these attacks of anginal origin because subsequent study by all means at our command gave no indications of coronary thrombosis. We have also observed such occasional prolonged attacks in patients over a long period of years, in one patient for seventeen years. When such attacks are not followed by any bodily prostration, or by fever or leucocytosis and fall of blood pressure, and if no T-wave changes characteristic of coronary thrombosis are found, one can be reasonably justified in excluding coronary occlusion.

Status anginosis usually means coronary thrombosis, and abdominal angina requires careful study to eliminate coronary occlusion. The diagnosis of angina pectoris is favored by the following signs and symptoms: (1) pain is more often confined to the upper half of the sternal region and is more frequently relieved by nitrites; (2) paroxysms are usually of short duration, and are rarely accompanied by vomiting (unless combined with biliary colic); (3) the attack is more apt to be precipitated by unusual emotion, a heavy meal, overexertion, as walking uphill or against a strong wind; (4) the anginal paroxysms are not commonly followed by shock, collapse with circulatory failure, pallor, cold sweats, imperceptible pulse or marked fall of blood pressure.

Notwithstanding all these points differentiating angina from coronary thrombosis, it is often impossible to separate in some instances a severe prolonged paroxysm of angina pectoris from an attack of acute coronary thrombosis, at the moment. Only by keeping patients in bed for several days and studying them, as suggested above, can a positive diagnosis be made in these doubtful cases.

In well marked cases of acute coronary thrombosis, followed by general prostration of the patient, leucocytosis and fever with fall in blood pressure, electrocardiography is unnecessary for diagnosis. When doubt exists as to clinical diagnosis of the disease, electrocardiograms are indicated if they can be made without moving the patient. Characteristic T-wave changes can be found in most patients within two weeks following an attack. But it must be clearly borne in mind that single, normal electrocardiograms in doubtful cases are valueless in excluding coronary thrombosis. After a patient has had an attack of acute coronary occlusion the tracings may at one time be normal and at another show characteristic T-wave changes (rounded, dipped or inverted). Unless the first electrocardiogram is diagnostic, a series must be taken before it is safe to eliminate the diagnosis of coronary thrombosis. Many nearly normal tracings may be taken before the diagnostic T-wave changes are revealed, but once found they confirm the diagnosis in a questionable episode of acute coronary thrombosis.

Abdominal Lesions. Coronary occlusion is often mistaken for an abdominal lesion or vice versa. Two cases illustrate the latter error and also the danger of giving too much diagnostic import to the actions of the patient during the painful seizure.

A middle-aged man had such a sudden, violent epigastric pain with collapse that he fell to the ground while working in the woods as an engineer. Because of his speechless immobility the local doctor made a diagnosis of acute coronary occlusion and filled his peritoneal cavity with stimulants before he came under our care. The previous history, and presence of a board-like abdomen, pointed to an acute perforated duodenal ulcer. Immediate operation disclosed the perforation under the knife. The patient made a good recovery.

An elderly judge was first seen rolling about his bed and crying with agony like a woman in labor. His outcries were heard throughout a large hotel. Three doctors were present and considering a diagnosis of acute coronary thrombosis. On inspecting the patient from the doorway we made a diagnosis of gallstone colic. This diagnosis was soon confirmed by operation.

Later experience has shown us the danger of excluding an attack of acute coronary occlusion because of the patient's noisy and astonishing activities. We must never forget Kipling's classic admonition as to "an humble and a contrite heart" (the doctor's).

It is not surprising that acute coronary thrombosis, with severe epigastric pain, vomiting and abdominal distention, followed by leucocytosis and fever, has led to erroneous diagnoses of upper abdominal lesions. Mistakes in diagnosis have more often, in our experience, been made in differentiating biliary colic and acutely perforated peptic ulcer from acute coronary thrombosis. In one instance, against our advice, an acutely enlarged liver following cardiac failure in coronary occlusion, was operated upon for an abdominal neoplasm.

Acute coronary occlusion has led to operations for acute pancreatitis, acute intestinal obstruction and acute appendicitis. We have not space to discuss all the pro's and con's in differential diagnosis. The previous history is of most importance, whether cardiac, hypertensive or digestive. If the latter, inquiry should be made into prior symptoms of gallbladder disease or peptic ulcer and into common causes of intestinal obstruction, as former abdominal sections, the presence of tumor, etc. A careful consideration of all the facts will usually solve the diagnosis, but it will prove a sad occasion for the internist if he overlooks the presence of acutely perforated peptic ulcer or intestinal obstruction. In such cases an immediate diagnosis is imperative and generally possible.

We find that the most difficult diagnostic cases are those in which both attacks of biliary colic and angina pectoris occur, either separately or together. When taking place simultaneously with vomiting and distention of the abdomen, the differentiation from coronary occlusion may be impossible at the time. In one woman, observed over a period of seventeen years, there occurred hundreds of anginal paroxysms, often supervening on gallstone colic and distention. This patient died suddenly of acute coronary thrombosis half an hour after paravertebral injections to relieve the frequent, unbearable anginal attacks.

Pulmonary Embolism and Infarction. These have led to mistaken diagnosis of coronary occlusion. Infarction may occur with the coronary seizure and be caused by it. Besides dyspnea, the pain, if present in infarction, is more often located in the side, accompanied by blood-tinged sputum and signs of localized pleurisy or consolidation. Roentgenograms may solve the diagnosis. Difficulties have arisen in differentiating fulminant lobar pneumonia from coronary thrombosis. Unless death is sudden, observation, the roentgenogram and electrocardiogram may differentiate the two diseases.

PROGNOSIS

Here we enter the realm of mass statistics and individual uncertainty. The immediate mortality (five minutes to six weeks) in acute coronary thrombosis appears to be about 20 per cent. Approximating 20 per cent in 370 cases (Willius), while Levine reports 15 to 25 per cent immediate mortality. About 30 per cent, surviving the attack, die gradually of heart failure over periods of months or years. Willius finds that of the 370 cases of acute coronary thrombosis reported, about 50 per cent were living, and nearly half of these were in good health. Many cases survive coronary thrombosis in excellent condition for many years, especially men in the thirties. One such case of ours, after a very severe episode at thirty-six, is now seven years later the head of a large financial firm, leading the most strenuous form of existence in New York.

Multiple attacks occur in about 20 per cent of patients, mostly in men (Willius). There were only three women with multiple episodes in 370 cases. The mortality is greater in seizures following the primary attack. Later attacks may appear at almost any time after the first seizure, from twelve hours to fifteen years. In the series of Willius, four episodes was the largest number recorded in any case. One of our patients, a woman of seventy-one, survived three severe attacks of coronary thrombosis appearing about a week apart. A second series of three marked attacks occurred at about the same intervals two years later. She finally succumbed to cerebral arteriosclerosis, the heart holding out wonderfully till the end.

Most patients survive a primary seizure of acute coronary thrombosis and, after the pain is wholly relieved, a large percentage have a comfortable and uninterrupted convalescence. The immediate conditions unfavorable to the subject are: advanced age, implying more pronounced vascular and myocardial disease; prolonged shock with critically low systolic blood pressure (below 100 mm.); high and prolonged fever and leucocytosis; marked edema of the lungs with cardiac asthma and Cheyne-Stokes breathing; rapid, feeble pulse and increasing dilatation of the left ventricle.

The most dangerous sequelae, occurring more often during the first weeks, are rupture of the heart and embolism. These are due to softening of the infarct in the ventricular wall, or to escape of a part of the ventricular thrombus formed when the endocardium becomes involved by the myocardial infarct. In some cases a gradual congestive heart failure supervenes with auricular fibrillation.

Convalescence frequently offers delightful opportunities to study all the known cardiac arrhythmias. They often appear in the early days after the coronary episode. Pulsus alternans is not rare, and ventricular tachycardia and heart block are most serious. Altogether the possible prospects during convalescence are not such as to encourage the doctor to assume the role of a prophet, if he values his reputation. As the elder Cheever was wont to remark, "the less you say the less you have to take back."

TREATMENT

Our treatment will be limited to that of the acute attack and its immediate consequences. The patient, if up and about when the episode occurs, should not be undressed but put at once to bed and surrounded with hot water bottles, if in shock. In the latter condition an instant subcutaneous injection of 0.5 cc. adrenalin solution, repeated if necessary, or a subcutaneous injection of 3 cc. of coramine should be used. Morphine in suitable doses should be given under the skin at the same time. With agonizing pain, ½ of a grain is advisable. With less severe pain the initial dose may be ⅓ to ¼ of a grain. Frequent repetition of doses of ¼ grain of morphine at thirty minute intervals should be administered until the patient is completely free from suffering.

The remarkable effect of morphine in acute coronary thrombosis suggests that part of its action consists in overcoming vascular spasm, as happens with the injection of papaverine in embolism of the extremities, thus not infrequently averting the need for amputation (McKechnie and Allen[5]). Morphine in relieving mental perturbation, in causing sleep, and in stimulating the heart and lessening dyspnea and edema of the lungs is of greatest value throughout the early days or weeks of critical cases, particularly in elderly persons. The patient must be kept at absolute rest in bed. The bed pan or urinal should be used throughout the whole rest period, except in patients who find less exertion in getting on a commode by the bedside. Even such patients must not use a commode until after the first three weeks. The minimum rest in bed prescribed is six weeks, even though the patient becomes perfectly comfortable after the first few days, to secure healing of the myocardial infarct.

Many patients should be kept in bed indefinitely because of the gravity of the attack or state of the cardiac or general condition. If the seizure is ushered in with pulmonary edema, atropine sulphate, gr. 1/50, may be combined with morphine. Oxygen is often useless in this complication. Only liquids, orangeade, ginger ale, weak tea or weak coffee, weak cocoa, warm milk and water, are to be used during the first few days. It is desirable to restrict the fluid to 1,200 cc. during this period, unless severe vomiting and sweating occur. Under these circumstances large amounts of fluid are indicated, or even the subcutaneous injection of 1,000 cc. of normal salt solution to avert dehydration.

The bowels should not be moved intentionally for two or three days. After this time an enema of sweet oil and water may suffice, preceded by a glycerin suppository. All through the convalescence it is advisable to administer one of the petroleum oil emulsions to avoid straining at stool. After the liquid period, a soft diet rich in carbohydrates and sugar is indicated, as fine cereal, cream of wheat, milk toast, egg on toast, junket, egg nog, apple sauce or baked apple, sherbet or ice cream, soft preserved fruit, as peaches and apricot, with plenty of vitamin C as orange juice. The diet is then steadily increased to include more solid digestible food in small amounts, three times daily. All food likely to cause gas should be avoided and the lightest meal should be the last one.

After the first paroxysm is relieved later stimulation of the cardiac and respiratory apparatus is often required. Levine recommends adrenalin for the first and caffeine for the second purpose. Cushny[6] says that caffeine has no action whatever on the heart in therapeutic doses. We have found that both objects may be accomplished by coramine, and it appears to be even more effective in raising blood pressure. In many cases one can raise and hold the blood pressure at the desired point by repeated doses of 1.5 to 3 cc. of coramine. In a recent case the blood pressure fell from 176 to 98 mm. within forty-eight hours. Then the pressure was raised rapidly by coramine to 135 mm. and has been kept at this level for weeks by 20 m. doses given by mouth t.i.d. In another critical attack of acute coronary thrombosis, occurring at about the same time, with marked collapse and pulmonary edema, we were able to combat the circulatory and respiratory failure and sustain the blood pressure (which had fallen from 160 mm. to 100 mm.) with coramine in suitable doses given subcutaneously.

After the emergency and vomiting pass, coramine may be given by mouth, in doses of 20 m. or more, and repeated at intervals of two or more hours, using the blood pressure as a guide. Coramine has proved very useful in relieving cardiac asthma in combination with morphine. The precise pharmacodynamics of coramine are somewhat uncertain (Daly[7]), and our own knowledge is purely clinical.

Coramine is nontoxic, and acts very rapidly when given under the skin. We employ it for weeks at a time and have never seen any ill effects after several years experience with it. Briefly, it is a powerful respiratory and cardiac stimulant, raises blood pressure and is said to be a coronary dilator. At times it has the most surprising diuretic effect when given with digitalis, after ammonium nitrate, theocin, digitalis and salyrgan have utterly failed. Digitalis is used as a routine remedy after acute coronary thrombosis by some clinicians, whereas others restrict its use to treatment of myocardial failure and passive congestion, when they occur.

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[5] McKechnie, R. E. and Allen, E. V.: Sudden Occlusion of Arteries of Extremities; Study of 100 Cases of Embolism and Thrombosis. Proc. Staff Meet., Mayo Clin., 10:678-682, Oct. 23, 1935.

[6] Cushny, A. R.: A Textbook of Pharmacology and Therapeutics. Lea & Febiger, Philadelphia, 1934.

[7] Daly, A. A.: Therapeutic Value of Coramine in Certain Pathologic Conditions. M. J. & Rec., 137:467-469, June 7, 1933.

We have found coramine a more satisfactory remedy during and immediately after the coronary episode, owing to its very rapid action. Also in some cases digitalis produces cardiac arrhythmias (extrasystoles, pulsus bigeminus, etc.) and its ill effects are slow in disappearing. If rapid, feeble heart sounds persist with dilated left ventricle, we would employ digitalis. In the majority of cases, without circulatory failure or complications, drugs are not needed to stimulate the circulation during the weeks of rest in bed. After this time the patient may well be given small doses of digitalis with theobromine over a long period. Levine[8] cautions against the use of digitalis within the first two weeks following an attack of acute coronary thrombosis and our experience supports this advice.

Oxygen we have used in various ways, by nasal catheters, Bullowa's nasal tubes, and keeping the patients in tents. Sometimes an occasional inhalation for fifteen minutes, repeated when required, is sufficient. When the tent is employed the patient cannot be removed from it suddenly (except for an all too common cause). In all critical attacks oxygen should be on hand, and the cheaper and simpler methods of inhalation may be tried at first (Bullowa's tube or catheter administration). As the presence of cyanosis is not the sole indication for oxygen, it is wise to test its effects in perilous states. The various complications following a seizure of coronary thrombosis, particularly the arrhythmias, must be treated according to accepted methods.

This paper is not based on a great number of cases but on observation of a limited number of patients over a great many years.

SUMMARY

The statistics given as to sex and age incidence, immediate mortality and chances of ultimate recovery in acute coronary thrombosis, are of interest to the profession but hold little of hope or comfort for the individual patient, especially when it is known that a subsequent attack may strike him at any time from twelve hours to fifteen years. Rather a strain for even the sword of Damocles.

In the differential diagnosis between angina pectoris and acute coronary occlusion, the short duration of the anginal paroxysms has been one of the chief distinctions between the two. In our experience attacks of angina pectoris have sometimes lasted for one-quarter to half an hour, the diagnosis being checked by subsequent study and observation over long periods, and by electrocardiograms.

While most persons seized with severe attacks of acute coronary thrombosis are loathe to move or speak, and gaze in silent, gasping, terrified agony at the doctors, others move, moan, cry out, throw themselves about in bed, pace up and down the floor, or lie down and get up again in unbelievable activity. Speechless immobility is not by any means a constant feature in attacks of acute coronary occlusions.

The chief motive of this paper is to stress the simplicity of diagnosis in doubtful cases of acute coronary thrombosis, subsequent to the acute attack. Fever and leucocytosis, immediately following the episode, have always occurred in our experience, and this observation is concurred in by our cardiologic friends. A larger experience may reveal exceptions to this rule, but it offers a sound basis for diagnosis of probable acute coronary occlusion when characteristic signs and symptoms occur, particularly in the absence of other diseases noted under differential diagnosis. In all suspected cases of coronary occlusion or prolonged attacks of angina pectoris, the taking of rectal temperatures and white cell counts is imperative.

Coramine is considered a valuable addition to treatment of acute coronary thrombosis. It is a rapidly acting, nontoxic heart stimulant, as well as coronary dilator. Its chief effect seems to lie in increasing and sustaining a falling blood pressure over prolonged periods. It has sometimes a remarkable diuretic action as an adjuvant to digitalis. As a powerful respiratory stimulant, it is useful in dyspnea of coronary occlusion, combined with morphine. Apparently coramine bids fair to occupy a position second to none in acute cardiac failure.

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[8] Levine, S. A.: Clinical Heart Disease. W. B. Saunders Co., Philadelphia and London, 1936.

INFLUENZA AND THE COMMON COLD

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One of the most interesting of recent developments in the field of infectious diseases has been the demonstration of viruses as an important factor in the etiology of acute upper respiratory infections. These studies have given us an entirely new point of view as to the cause and nature of influenza and the common cold. Perhaps we can do no better than start this discussion with definitions. The mildest of the upper respiratory infections is the common cold. It is always with us. It is perhaps the most prevalent of all human ailments, certainly the commonest of the infections. The common cold is nothing more than an acute catarrhal condition of the nose and throat which usually involves to some extent the accessory sinuses. Constitutional symptoms are absent or slight. It is difficult to draw a sharp line between the common cold and so-called "grippe." Indeed, it is doubtful if any such differentiation should be attempted. By grippe, however, doctors and laymen both think of a cold with definite constitutional symptoms such as fever, malaise and headache.

Influenza represents the third degree of severity and might be defined as an acute catarrhal infection of the upper respiratory tract accompanied by chilly sensations, fever which is sometimes quite high, extreme prostration and leukopenia. In influenza the infection makes a more rapid and intense attack on the bronchial tree. There is usually dry hacking cough with substernal pain, and later on there may be considerable sputum. Influenza may be epidemic or pandemic. Mild epidemics are seen in the temperate zone almost every winter. The pandemics are characterized by a high incidence rate and a high complication rate. The great pandemic of 1918 caused many thousands of deaths, most of these being directly attributable to influenzal pneumonia.

I should now like to review briefly for you our more recent knowledge on the subject of coryza and influenza. We have all come to think of coryza as being closely related to conditions of weather, and it is true that colds are much commoner in winter than in summer. However, cold weather alone is not enough to induce a common cold. This has been shown by the studies of Paul and Freese[1] who found that common colds were practically unheard of in Spitzbergen except in the spring when the trade boats arrived from ports further south. Within a week after the arrival of the boats 25 per cent of the native population developed colds, indicating very clearly that contagion was a much more important factor than cold weather.

The older bacteriologists thought that common colds were caused by the normal inhabitants of the throat, such as pneumococcus, staphylococcus, streptococcus, etc. However, in 1922 Olitsky[2] described a very minute gram-negative organism, a sort of cocco-bacillus which he called the *bacillus pneumocintes* and which he thought was etiologically related to the common cold. The bacillus pneumocintes was a filter passer and rigid anaerobe. Subsequent studies, however, have shown that these minute microorganisms were inhabitants of the normal throat and were probably in no way related to coryza.

During the last decade a great deal of active interest has been manifested in the bacteriology of the common cold. First, Bloomfield,[3] then Shibley, Hangar and Dochez[4] made careful studies of the normal bacterial flora of the healthy nose and throat. They found that, in addition to the so-called basal flora which inhabit the normally healthy mouth, there were certain pathogenic bacteria such as streptococcus hemolyticus, the various types of pneumococcus, and the bacillus influenzae which became normal inhabitants of the mouth for longer or shorter periods. To these investigators it seemed likely that these pathogenic organisms, while not actually responsible for initiation of the common cold, no doubt had an important role to play in the secondary complications such as sinusitis, otitis, mastoiditis and pneumonia.

Kneeland and Dawes[5] made an interesting study of the bacterial flora of infants. The upper respiratory tract of the new-born child is sterile, but with-

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[1] Paul, J. H. and Freese, H. L.: Epidemiological and Bacteriological study of "Common Cold" in isolated Arctic Community (Spitzbergen). Am. J. Hyg., 17:517-535, May. 1933.

[2] Olitsky, P. K. and Gates, F. L.: Experimental Studies of Nasopharyngeal Secretions from Influenza Patients; Recurrence of 1922. J. Exper. Med., 36:501-519, Nov., 1922.

[3] Bloomfield, A. L.: Significance of Bacteria Found in Throats of Healthy People, Bull. Johns Hopkins Hosp., 32:33, Feb., 1921: Variations in Bacterial Flora of Upper Air Passages During Course of Common Colds. ibed. 32:121, April, 1921.

[4] Shibley, G. S., Hangar, F. M. and Dochez, A. R.: Studies in Common Cold; Observations of Normal Bacterial Flora of Nose and Throat with Variations Occurring During Colds. J. Exper. Med., 43:415-431, March, 1926.

[5] Kneeland, Y. Jr., and Dawes, C. F.: Studies on Common Cold; Relationship of Pathogenic Bacteria to Upper Respiratory Disease in Infants. J. Exper. Med., 55:735-744, May, 1932.

in a few months after birth the bacterial flora of the mouth becomes quite similar to that of adults. Kneeland and Dawes found that among institutional infants, where the opportunity for the dissemination of bacteria is good, a very high incidence of respiratory infections occurred between the ages of eight and fourteen months. They found that during the fall months these respiratory infections were quite mild and that the incidence of pathogenic carriers was low. In the late winter or spring, however, the pathogenic carrier rate would reach a high incidence and at that time a wave of respiratory disease occurred which was much more severe than the fall epidemic and one characterized by a much higher incidence of complications.

The first actual reference to a filterable virus as the cause of colds was by Kruse[6] in 1914, when he reported the isolation of a virus from a patient, and experimental production of colds with bacteria-free filtrates. These experiments were repeated in 1920 by Foster[7] who obtained similar results. A very important addition to our knowledge of viruses in relation to the common cold was made in 1929 when Dochez, Shibley and Mills[8] observed that chimpanzees were susceptible to colds and that these closely resembled the same infection in human beings. They then made the important report that, when these animals were inoculated intranasally with bacteria-free filtrates of nasal washings obtained from early human cases of the common cold, the chimpanzees developed typical coryza in 40 per cent of instances. Later on these observers carried out similar experiments successfully on human volunteers. Most of the experimental colds both in man and in chimpanzees were of a mild character and disappeared within five days, usually without any complications.

Further knowledge has been gained concerning the virus of the common cold by Dochez and his associates. It survives anaerobicly in the cold for at least thirteen days. It is inactivated by a comparatively low degree of heat, and lastly it has been demonstrated to multiply in tissue culture medium of the type used in vaccine virus. Positive experimental infections have been obtained with tissue cultures of the cold virus as many as fifty generations after the original "seeding." These findings by Dochez and his associates have been completely confirmed by Powell and Clowes[9] and other investigators, and indicate that the cold virus is similar to other typical filterable viruses that have been previously studied.

In discussing the etiology of influenza it is necessary to review briefly the history of the efforts which have been made along this line. In 1892 Pfeiffer[10] isolated the bacillus influenzae from a large number of patients with the disease and believed that he had found the exciting agent of pandemic influenza. His work was confirmed by many bacteriologists and for many years thereafter it was usually considered in medical textbooks and other articles on the subject that epidemic influenza was caused by the so-called Pfeiffer bacillus. In 1918, however, when another great pandemic of influenza swept over the world, a sharp controversy arose concerning the etiology of the epidemic. Many able bacteriologists claimed that they had failed to recover the influenza bacillus from typical cases of influenza, and they questioned strongly the etiologic relationship of the bacillus to the disease. Other bacteriologists were equally insistent that the Pfeiffer bacillus was the responsible agent.

In 1920 Cecil and Blake[11] were able to produce an acute respiratory infection in monkeys by the intranasal injection of virulent Pfeiffer bacilli. In 1921 Cecil and Steffen[12] carried out similar experiments on human volunteers. Again in these experiments an acute respiratory infection was produced by the Pfeiffer bacillus, but the clinical picture obtained was much more like the common cold than the severe prostrating disease which we had seen in the pandemic of influenza. In 1919 Yamanuchi[13] claimed the demonstration of a filterable virus in patients suffering from influenza. The Japanese succeeded in producing what they described as the "typical disease" by inoculation of nasal washings into healthy volunteers. Practically all previous attempts made by investigators during the great pandemic of 1918 to isolate a virus from influenza patients had been unsuccessful. However, thirteen years later Long and his associates[14] inoculated chimpanzees with washings from a patient with influenza and produced experimental respiratory infection characterized by prostration, fever and leukopenia.

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[6] Kruse, W.: Die Erreger von Husten und Schnupfen. München. med. Wchnschr., 61:1547, 1914.

[7] Foster, G. B., Jr.: Common Colds. J. A. M. A., 66:1180, April 15, 1916.

[8] Dochez, A. R., Shibley, G. S., and Mills, K. C.: Study of Acute Infection of Respiratory Tract in Ape. Proc. Soc. Exper. Biol. & Med., 26:562-565, April, 1929.

[9] Powell, H. M. and Clowes, G. H. A.: Cultivation of Virus of Common Cold and Its Inoculation in Human Subjects. Proc. Soc. Exper. Biol. & Med., 29:332-335, Dec., 1931.

[10] Pfeiffer, R.: Deutsche med. Wchnschr., 18:28, 1892.

[11] Cecil, R. L. and Blake, F. G.: Treatment of Experimental Pneumococcus Type I Pneumonia in Monkeys with Type I Antipneumococcus Serum. J. Exper. Med., 32:1, July, 1920.

[12] Cecil, R. L. and Steffen, G. I.: Acute Respiratory Infection in Man Following Inoculation with Virulent Bacillus Influenzae. J. Infec. Dis., 28:201, March, 1921.

[13] Yamanouchi, T. Sakakami, K. and Iwashima, S.: Infecting Agent in Influenza. Lancet., 1:971, June 7, 1919.

[14] Long, P. H., Bliss, E. A. and Carpenter, H. M.: Etiology of Influenza; Transmission Experiments in Chimpanzees with Filtered Material Derived from Human Influenza. J. A. M. A., 97:1122-1127, Oct. 17, 1931.

In 1933 Smith, Andrewes and Laidlaw[15] brought forward additional evidence of the virus nature of influenza when they produced an acute febrile infection of the respiratory tract of ferrets by inoculating them intranasally with the filtered washings from cases of influenza in man. Dochez and his coworkers have succeeded in cultivating the virus of influenza on tissue medium.

The importance of the influenza bacillus in human influenza has not been accurately determined. The studies of Shope,[16] however, on swine influenza, a disease which has many of the characteristics of human influenza, have thrown considerable light on the subject. Indeed it is quite likely that the two diseases are identical, as swine influenza first made its appearance in 1918 at the time of the pandemic in man. Shope first showed that the active agent of swine influenza is a filterable virus. This virus when injected alone into healthy pigs produced a very mild disease. However, when in addition to the virus, the bacillus of swine influenza was added a very severe and often fatal respiratory infection resulted. The experimental inoculation of the swine influenza bacillus alone produced little or no manifestation of infection.

The discovery that ferrets, swine and mice are susceptible to the influenza virus has facilitated enormously the study of this disease. Indeed, it is not too much to expect that within the next few years we will have a fairly complete understanding of the bacteriology and immunology of influenza and quite possibly methods of preventing and controlling the disease. For example, Francis and Magill[17] have shown that, following infection with the virus of influenza, both ferrets and mice develop a state of active immunity against infection. The serum of these animals contains specific antibodies as evidenced by the capacity of the serum to confer protection on mice against infection with the influenza virus. Francis also found that rabbits which are apparently not susceptible to infections with the virus of influenza produce specific antibodies in response to repeated injections with the virus, and the serum of these immunized rabbits affords passive protection to mice against the virus.

Francis and Shope[18] have carried out mouse protection tests with one hundred and thirty-six human sera and a strain of human influenza virus. After the first year of life the sera of approximately half the individuals tested contained enough antibody to furnish complete protection to mice. A much higher percentage of the sera obtained from individuals recently convalescent from influenza exerted a completely protective effect. In view of the strides which have been made in the last few years it seems reasonable to conclude that within a short time we will have a fairly accurate conception of the etiology, pathogenesis and immunology of coryza and influenza.

The prospect of some practical method of immunization seems more likely to be realized than any sort of specific curative serum. It appears quite likely that the virus, to be an efficient immunizer, must be given in the living state, but apparently this can be done without causing the disease or without causing very severe reactions in the subject. One can not resist the impression that in both coryza and influenza some sort of symbiosis of viruses and bacteria play an important part, the virus preparing the way and the bacteria causing the severe symptoms and complications. We must not forget, however, that the virus alone in ferrets and mice can produce a virus pneumonia. In man this does not happen, or at least does not happen often. In the pneumonias secondary to coryza and influenza pathogenic bacteria are practically always isolated. If prognostications are permissible, one might suppose that the cold vaccines and "flu" vaccines of the future will be some kind of combination of virus with the ordinary pathogenic organisms of the human nose and throat.

Rockwell, Van Kirk and Powell[19] have recently published an article in which they claim to have successfully immunized patients against the common cold by the oral administration of bacterial vaccines. In view of the fact, however, that ordinary cold vaccines failed to give complete protection even when given subcutaneously, one must accept the claims of Rockwell, Van Kirk and Powell with considerable reservation. Ordinary cold vaccines, either stock or autogenous, do have some value as a prophylactic agent when given subcutaneously. In the experience of the author the majority of individuals who receive cold vaccine at short intervals through the winter and spring have a fairly good protection against respiratory infections. If a cold does develop the course is shorter and the symptoms less severe. Furthermore, one fact seems to be quite well established, namely, that the pneumococci contained in ordinary commercial cold vaccines give adequate protection against pneumonia caused by the homologous types.

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[15] Smith, W., Andrewes, C. H. and Laidlaw, P. P.: Influenza: Experiments on Immunization of Ferrets and Mice. Brit. J. Exper. Path., 16:291-302, June, 1935.

[16] Shope, R. E.: Swine Influenza; Studies on Contagion. J. Exper. Med., 59:201-211, Feb., 1934.

[17] Francis, T., Jr. and Magill, T. P.: Immunological Studies with Virus of Influenza. J. Exper. Med., 62:505-516, Oct., 1935.

[18] Francis, T., Jr. and Shope, R. E.: Neutralization Tests with Sera of Convalescent or Immunized Animals and Viruses of Swine and Human Influenza. J. Exper. Med., 63:645-653, May, 1936.

[19] Rockwell, G. E., Van Kirk, H. C. and Powell, H. M.: J. Immunol. In Press.

In conclusion, then, we may say that all evidence points to the fact that the common cold and influenza are initiated by a filterable virus but that most of the toxemia, discomfort and complications are caused by the invasion of secondary pathogenic bacteria such as the pneumococcus, streptococcus, staphylococcus and influenza bacillus. Evidence is already at hand that immunization against the influenza virus is feasible and effective. It seems quite likely that within the next few years some sort of combination vaccine, containing both virus and pathogenic bacteria, will be available for prophylactic purposes and that by the use of such a vaccine an active immunity against acute upper respiratory infections will be achieved.

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DIVERTICULUM OF FEMALE URETHRA

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Diverticula of the female urethra occur somewhat more frequently than are usually supposed, and a recent survey of the literature substantiates this statement. While perhaps they are only seen at rare intervals, they exist for various lengths of time before discovery. In this connection the diagnosis is at once established by a careful urethroscopy. This usually follows upon cystoscopy, where before infection is established and its resulting changes occur, a normal bladder is encountered, and negative urine examinations have also been obtained.

The complaints presented are referable to the lower urinary tract, and always show some degree of dysuria. When this is associated with a normal bladder and negative urine, we should bear in mind the possibility of urethral diverticulum. If there are associated conditions present, such as infection, stone formation or upper urinary tract pathology, one should always remember the possibility of coexisting factors to explain the complaints referable to that part of the urinary system distal to the trigone. A careful history will elicit the dysuria encountered by urethral diverticula large enough to produce symptoms.

In discussing a diverticulum of the urethra, one naturally thinks of a classification of such. I submit that given by McNally[1] and originally reported by Watts.[2]

URETHRAL DIVERTICULA

A. Congenital.
B. Acquired.
  1. From dilatation of the urethra.
    a. Due to urethral calculus.
    b. Due to urethral stricture.
  2. With perforation of the urethra resulting from
    a. Injuries to the urethra.
    b. Rupture of abscesses into the urethra.
    c. Rupture of cysts into the urethra.

In consideration of treatment, it is almost self-evident that surgical procedure is the one accepted method. In the past attempts have ben made to cauterize the urethral opening by chemicals or various types of electric current, and also by injection of the sac by irritants. These methods have not proven satisfactory. The operative procedure to remove the sac, and close the opening in the urethra gives the best results.

CASE REPORT

On June 20, 1936, the following case came under my attention for diagnosis and treatment, through the courtesy of Dr. H. H. Milburn, Vancouver, B. C.

Mrs. B., married, aged 36 years. Previous negative history.

Complaints: 1. Pain accompanying and following micturition. 2. Occasional periods of frequent urination.

Onset and Course: She stated that her present complaints had been present off and on ever since the birth of her first child ten years ago.

She complained of pain commencing just after starting to void, and which appeared to be within the urethra and apparently at the bladder neck region. It radiated at times upwards toward the suprapubic area, and occasionally to the posterior region, perineum and rectal areas. This pain was described as sharp, knife-like in character, and always appeared just after the urine commenced to flow. At times it was so severe that she stopped urination, and would hold the urine back for a few seconds. It usually persisted for various periods following micturition, at times lasting upwards to one hour, and when so, it was a dull ache experienced in the same region as previously stated. This pain at first was not present with every act of micturition. During the past year it was present at some time daily, and during the past few months increased in its frequency and severity, so that of late it had accompanied every urination.

During parturition sixteen months ago (last pregnancy), just before delivery, there appeared to be an "abscess" rupture near the urethral orifice with discharge of considerable pus. Following this confinement she had no urinary pain for about six months, and she thought her "trouble" had left her entirely. However, it then began to return gradually and increasing in frequency and severity.

During the past year she had occasional periods of frequent urination, having desire to void at times every one to two hours, but she usually attempted to hold the urine, as she dreaded the onset of the pain which would accompany its passing. She did not have nocturia except for an occasional desire to void at night, but for the same reason she attempted to hold the urine on account of the pain which would be experienced.

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[1] McNally, A.: Diverticula of Female Urethra. Am. J. Surg., 28:177-181, April, 1935.

[2] Watts, S. H.: Johns Hopkins Hospital Rep., 13:49:89, 1906.

There had been no urgency, no hematuria and no obstruction to the flow of urine. Urine examinations had always been reported negative.

Examination:

Urine: Completely negative.

Cystoscopy: The external urethral orifice was negative, and the cystoscope entered without difficulty and passed into the bladder without obstruction. The bladder cavity was found negative upon examination.

Urethroscopy: Disclosed an aperture resembling an opening to a diverticulum, this being in the midportion of the urethra, toward the left lateral surface. It was not unlike an opening of a diverticulum observed within an urinary bladder. There was no efflux from it. A catheter was inserted into this and sodium iodide injected; a cystogram was also made.

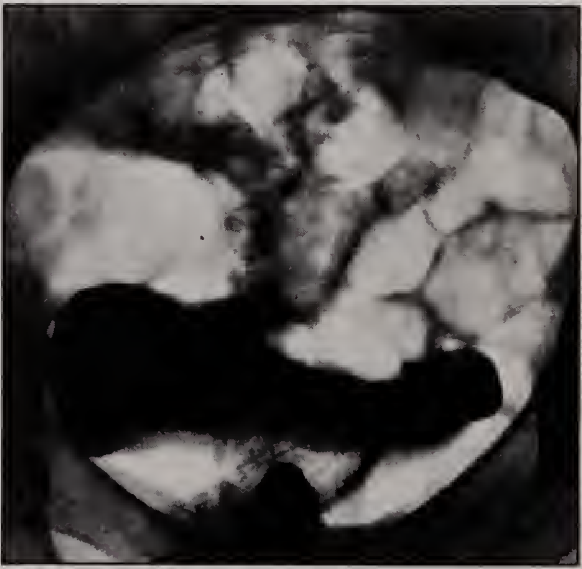

Fig. 1. Cystogram and diverticulogram. The cystogram does not indicate a complete filling of the bladder, and is somewhat obscured by presence of gas in the bowel. The diverticulogram is clear cut and stands out clearly.

Roentgen report by Dr. C. W. Prowd of St. Paul's Hospital, "Diverticulum of Urethra" (fig. 1).

Treatment: Operative, spinal anesthesia.

Incision was made through anterior vaginal wall, flaps dissected laterally. A diverticular opening into the urethra on the left was exposed. It was dissected free as far as possible, but found to be firmly adherent in its upper extent. The sac was opened and its urethral opening closed off by interrupted Lembert sutures, reinforced by a purse string. The diverticulum was removed in portions. A urethral catheter was inserted for retention drainage. This was left in for ten days, when it was removed.

Postoperative Note: The postoperative course was uneventful. Following removal of the catheter, she voided without difficulty. At this date there has been no dysuria, micturition being normal.

925 W. Georgia Street.

CARCINOMA OF THE SMALL BOWEL *

WITH CASE REPORTS

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Because of its relative rarity, carcinoma of the small intestine is usually overlooked when one is confronted with a bowel problem. Symptoms produced by such a lesion are often misleading and the diagnosis generally becomes apparent only on the surgical or postmortem table. Neoplasms of the small bowel comprise from 3 to 6 per cent of all gastrointestinal malignancy, according to reports of various authors. In a series of thirty-eight cases Raiford[1] found they amounted to 4.9 per cent of his entire number of gastrointestinal malignancies. Rankin and Mayo[2] stated that carcinoma of the small intestine occurred in fifty-five cases at The Mayo Clinic through 1929, as compared with 4,597 of the large bowel and rectum together, and 4,335 of the stomach, or in a ratio of 1 to 80.

Tumors of the small bowel may be classified as benign or malignant; the benign group includes adenoma, fibroma, lipoma and myoma; the malignant group, carcinoma and sarcoma. Benign lesions tend to grow into the lumen and give rise to intussusception, causing sudden, severe symptoms. Sarcomata are more likely to involve the lymphoid tissue especially in the terminal ileum, where, by mesenteric extension rather than by blocking the lumen, obstruction is produced by kinking or volvulus. Carcinomata are usually of the annular type of lesion with a tendency towards stenosis and adherence to adjacent structures.

Small intestinal carcinomata show the highest incidence in the duodenum or the jejunum, depending on varying reports and commonly the lowest incidence in the ileum. Raiford[3] cites in a series of thirty-four cases that there were eight primary in the duodenum. In the files of The Mayo Clinic through 1935 Nettrour[4] found only thirty-one proved cases of primary carcinoma of the jejunum. In the duodenum Mateer and Hartman[5] have classified carcinomata according to their points of origin as the preampullary, ampullary and the prejejunal types. The preampullary type usually gives rise to symptoms similar to those produced by stenosing duodenal ulcer, the ampullary type conveys the impression of an extrahepatic obstruction and the prejejunal type behaves like obstruction in the third portion of the duodenum with copious, bile-stained emesis.

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* Read before the Semi-annual Meeting of North Pacific Society of Internal Medicine, Victoria, B. C., Sept. 4-5, 1936.

[1] Raiford, T. S.: Tumors of Small Intestine. Arch. Surg., 25:122-177, July, 1932.

[2] Rankin, F. W. and Mayo, C., Jr.: Carcinoma of Small Bowel. Surg. Gynec. & Obst., 50:939-947, June, 1930.

[3] Raiford, T. S.: Tumors of Small Intestine; their Diagnosis, with Special Reference to X-ray Appearance. Radiology, 16:253-270, Feb., 1931.

[4] Nettrour, W. S.: Carcinoma of Jejunum; Report of Case. Proc. Staff Meet. Mayo Clin., 11:356-360, June 3, 1936.

[5] Mateer, J. G. and Hartman, F. W.: Primary Carcinoma of Duodenum; Clinical and Pathologic Aspects, with Differential Diagnosis. J. A. M. A., 99:1853-1859, Nov. 26, 1932.

The average age of patients with carcinoma of the small intestine is between forty-five and fifty years. Generally they show a proportion of 70 per cent males and 30 per cent females. There is a wide variation in duration of symptoms, ranging from two to three months to five years or more, depending in part on the type and grade of the carcinoma.

The onset of symptoms may be insidious or abrupt. When insidious the history resembles those of chronic cholecystitis, peptic ulcer or primary anemia. When frank, the initiation of the process is characterized by a sudden attack of abdominal cramps. One then sees the picture of acute intestinal obstruction, the main features of which are violent cramps usually in the lower quadrants, meteorism, nausea and vomiting, visible and reverse peristalsis and borborygmus. The first attack is often of short duration and is followed by complete recovery. A long interval of freedom from symptoms may pass before another episode of acute intestinal obstruction occurs. Eventually, as the disease progresses, there is greater severity of and shorter intervals between recurrences of the obstruction, until there is a continuous, severe abdominal distress.

Constipation is more frequently complained of than diarrhea; when there is a history of the latter, it is found to have alternated with constipation; finally the constipation becomes increasingly obstinate. An early sign may be that of tarry stools; at least repeated tests for occult blood should be performed; a marked anemia may be present, bearing all the aspects of primary type. The patient may be cachectic and often shows a loss of weight averaging thirty pounds. A mass is often palpable; it is usually movable unless it has become adherent to fixed tissue; upon feeling it an impression is gained of a soft substance slipping away from the fingers.

The situation of the growth seems to have no especial effect upon the gastric content. Proctoscopic examination usually gives negative results. The roentgen ray is of importance in that it is of aid in eliminating the presence of diseases of the gallbladder, the stomach and the colon. When acute intestinal obstruction is due to carcinoma of the small bowel, the stomach and duodenum intermittently will show gaseous distention; the bowel proximal to the lesion is markedly dilated by gas and liquid; a typical step-ladder arrangement of the loops is seen and markings of the valvulae conniventes are outlined by the barium, especially in the jejunum.

Neoplasms of the small intestine generally show a high degree of malignancy. Metastasis is a common accompaniment. Treatment, when the growth is removable, is resection followed by reestablishment of the lumen of the bowel. The prognosis is unsatisfactory and the patient does not live long, even though a resection has been performed. Death comes in a shorter interval in carcinoma of the small bowel than it does in resectable growths of the large bowel and of other parts of the gastrointestinal tract.

ILLUSTRATIVE CASES

Case 1. Carcinoma of the ileum. *History of illness.* The patient, a white male, single, aged 48 years, was seen in the office of one of us (J. M. B.) March 1, 1934. He had been doing heavy work as a longshoreman the past three months. One year previously he was examined in the outpatient department of the King County Hospital, and was placed on a peptic ulcer regime. During the preceding year his weight had declined as much as thirty-five pounds below the usual level of 160 pounds. He would lose generally as much as eight to ten pounds of weight in one week and regain it during the same interval of time, depending on whether symptoms of abdominal distress were present or absent. When his symptoms became rather marked, he was forced to discontinue his work until amelioration took place.

His weight varied according to his ability to digest nourishing foods and remain free from pain and vomiting. His diet had consisted mostly of dairy products, eggs, bread, cooked cereals, fruit juices, strained vegetables and olive oil. Meat and coarse vegetables produced untoward symptoms.

The patient complained of a cramp-like pain a few times a day for seven to ten days at a stretch, usually postprandially, three to four hours after eating. The onset of the pain was first noticed just inferior to the umbilicus, from which point it extended superiorly to the epigastrium, especially in its left half. The pain often lasted as long as six or seven hours at a time, and frequently would radiate around the costal margin or to the retroscapulary regions.

Gaseous distention, borborygmus, nausea and tenderness just to the left of the umbilicus accompanied the pain. Often the patient experienced so much abdominal distress that he spent most of the night inducing vomiting until the upper gastrointestinal tract was entirely rid of undigested food particles. Constipation had been present for years. During the periods of distress, the patient had gone as long as five days without a bowel movement. Enemas usually gave poor results. There was no history of passing tarry stools.

Personal history. The patient had typhoid fever at fifteen

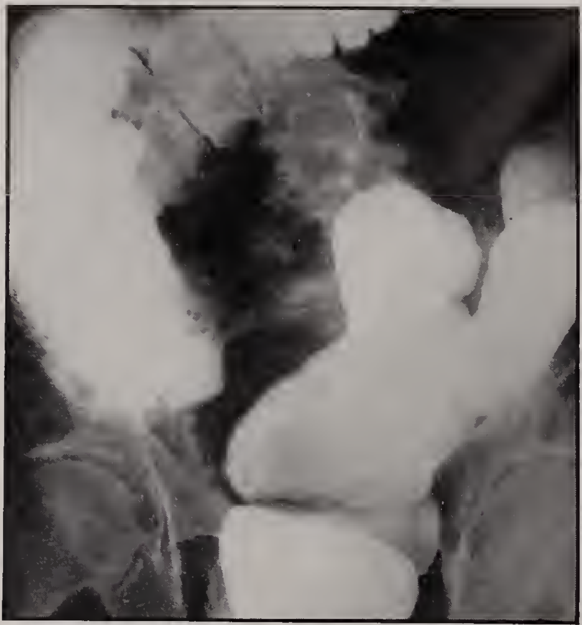


Fig. 1. Shows step-ladder arrangement of markedly distended loops of small bowel. Outline of colon after opaque enema is normal.

years of age, and influenza in 1918. He knew very little about his family history and had never been married. He had enjoyed good health and was engaged in heavy manual labor without interruption until the onset of his present illness fifteen months before he was first examined.

Physical examination. The patient was a middle-aged male, showing marked emaciation and dehydration and some pallor. He had well developed muscles, but his skin was dry and was covered by closely distributed lentigo on the right half of the trunk, anteriorly and posteriorly; the left half was entirely free of lentigo. His usual weight was 160 pounds and his present weight 125 pounds. The temperature, pulse rate and blood pressure were within normal range. There was no evidence of pulmonary tuberculosis. Fist percussion over the renal areas elicited no tenderness. A moderate amount of distention was present in the lower abdomen; visible peristalsis was seen; borborygmus was highly audible; auscultation revealed profound intestinal movement in the upper abdomen and no mass was palpable. Digital examination of the rectum was negative. Other physical findings were of no importance.

Laboratory observations. The urine showed a very faint trace of albumin and a trace of sugar. The hemoglobin was 70 per cent, the red blood cells 3,890,000 and the white blood cells 6,000 per cm. of blood with neutrophiles 67 per cent, lymphocytes 31 per cent and eosinophiles 2 per cent. Wassermann reaction on the blood was negative. Analysis of gastric content gave total acidity of 46 and free hydrochloric acid 16 in terms of cc. of 1/10 N. Na OH. The stool failed to show the presence of occult blood on two occasions. The Mantoux test was negative.

Roentgen studies. Cholecystograms following the oral administration of iodekin gave no evidence of the dye in the gallbladder or the intestine. After an opaque meal was given there was no delay in the esophagus, and the stomach filled smoothly and well except for pressure on the greater curvature which was thought to be due to gas in the colon. Tone and peristalsis were normal and emptying was not delayed. Fluoroscopy of the duodenum did not reveal any deformity or filling defect, but two radiographs showed poor filling of the cap.

At six hours there was no gastric residue and the head of the barium column was in the proximal transverse colon. The terminal ileum appeared to be distended considerably and its outline quite irregular. At twenty-four hours the head of the barium column was in the distal transverse colon, and the fluoroscope revealed definite fluid levels in distended gas-filled pockets of the intestine. A similar picture was seen at forty-eight hours. Twenty-four hours later there was an enormous gaseous distention.

At this time an opaque enema was given, showing there was some increased capacity of the colon, but without gross defect; the cecum demonstrated some irregularity in outline, but it filled well. By contrast it was seen that the

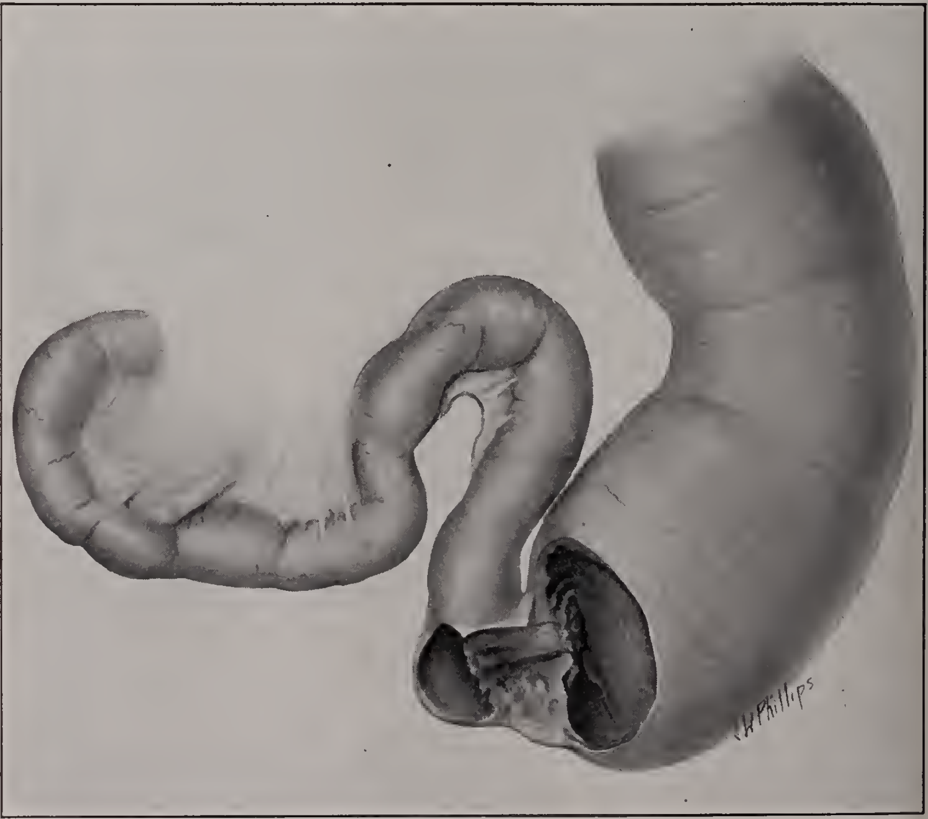
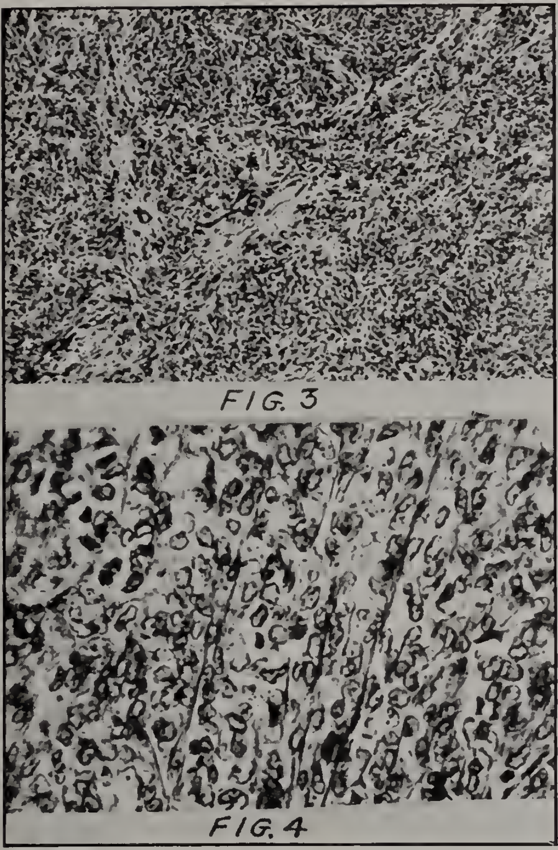


Fig. 2. Postmortem appearance of carcinoma of ileum producing marked obstruction.



F/G. 3

F/G. 4

Figs. 3 and 4. Low and high magnifications of carcinoma of ileum showing corded arrangement of cells.

enormous gaseous distention was limited to the small intestine, pointing to its partial obstruction (fig. 1). The appearance of the cecum suggested a possible tuberculous involvement. Stereoscopic films of the chest showed an old parenchymal infiltration in the lower lobe of the right lung. Appropriate films taken of the region of the suprarenal glands failed to show any areas of calcification.

Follow-up events. The probable diagnosis of hyperplastic tuberculosis of the terminal ileum with partial obstruction was ventured. The patient was seen by a surgical consultant who advised immediate exploratory laparotomy. He refused surgical intervention. His situation became a recurrence of what had taken place before, until he was entirely bedfast and his weight reduced to 110 pounds. His death took place at the King County Hospital, July 26, 1935.

Autopsy. About two meters from the pylorus there is a constriction involving the entire circumference of the small intestine. The peritoneum is puckered at this point; proximal to this the intestine is markedly distended, and its wall is thick, tough and white; distal to this it is collapsed and almost totally empty. There is at this point in the lining and wall of the intestine an annular, completely encircling, obstructive band of firm pink tissue 2.5 cm. wide and 1.5 cm. in average thickness, the mucosal surface of which is slightly excavated in the form of a shallow ulceration (fig. 2). The mesenteric lymph nodes are free of any similar tissue but in the liver substance are about six circumscribed nodules of similar firm pink tissue from 0.5 to 3.0 cm. in diameter. All other changes in the thoracic or abdominal visceral were secondary to this or irrelevant.

Microscopic report. In sections of the lesion of the intestine and of the metastatic nodules in the liver essentially the same changes were present. There is a diffuse proliferation of very small cells possessing clear vesicular nuclei, round or oval, about 10 microns in average diameter with a small amount of faintly basophilic cytoplasm and indistinct cell outlines (figs. 3, 4). For the most part the cells are arranged in compact bundles and are rather flat and spindle-shaped, but in a few places there is a distinct quasi-columnar pattern. It is from the pattern arrangement rather than individual cytology that this tumor is recognizable as epithelial in origin. In Van Gieson's stain there is a distinct stroma everywhere between cell groups.

Histologic diagnosis. Carcinoma of the small intestine of a poorly differentiated cell type. This does not resemble the so-called argentaffin or carcinoid tumor.

Case 2. Carcinoma of the duodenum. *Preoperative history.* A white female, 56 years of age, experienced in the summer of 1933 a gradual onset of dyspepsia plus occasional spells of vomiting. Dr. Cameron of Minot, North Dakota, who examined her, made a diagnosis of cholecystitis. He performed a laparotomy October 12, 1933. In his letter to one of us (B. P. M.) he stated the gallbladder was thick-walled, buried in adhesions and contained stones and was removed. She failed to show improvement in her condition postoperatively. She continued to vomit and in January, 1934, roentgen films were taken. An obstruction was visualized in the third portion of the duodenum. She was hospitalized for observation and a possible second operation, but symptoms disappeared under medical management.

The patient remained in good condition except for rare attacks of vomiting, for the next six months. However, in October the vomiting occurred more frequently. Her condition became progressively worse until she was admitted to King County Hospital, at which time the bowel obstruction was nearly complete and she had lost 20 pounds in weight.

The patient was admitted on the medical service, and measures such as frequent gastric lavage and the administration of glucose and saline solutions intravenously were instituted. This treatment was continued for twenty-one days. During this period there were occasions marked by improvement, but finally the obstruction became practically complete and everything taken by mouth was regurgitated.

The patient was transferred then to the surgical service. At this time vomiting was frequent and accompanied by pain in the right hypochondrium with radiation to the right flank. On examination it was apparent that the condition of the patient was critical. There was a marked ventral hernia in the old gallbladder incisional scar. Through this it was possible to palpate the abdominal contents easily. A mass 5 by 7.5 cm. was found in the right hypochondrium just to the right of the middle and above the umbilicus. It did not move with respiration and the palpating hand could be placed beneath it. In fact it was possible to hold the tumor between the thumb and fingers. It was not fixed and was moderately mobile.

Roentgen studies. Films of the stomach and colon after a barium meal and enema, respectively, and the visualization of the kidneys after the intravenous injections of neoiopex were requested. However, only fluoroscopy of the stomach and duodenum after an opaque meal was done and was reported as negative. The kidneys were found to be in their normal positions.

Laboratory observations. Seven gastric analyses failed to show any free hydrochloric acid and total acidity ranged from 12 to 45 in terms of cc. of 1/10 N. Na OH. The hemoglobin was 85 per cent, the red blood cells 4,300,000 and the white blood cells 11,300 per cm. of blood with neutrophiles 90 per cent and lymphocytes 10 per cent. The blood chlorides were 454 mg. per 100 cc. of blood. Occult blood was absent in the stomach contents and the stool.

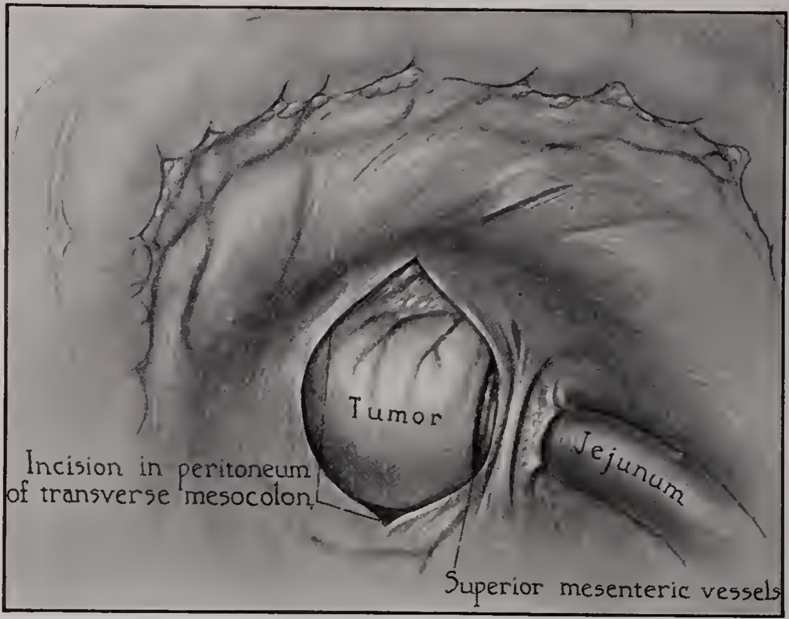

Tumor
Jejunum
Incision in peritoneum of transverse mesocolon
Superior mesenteric vessels

Fig. 5. Operative view of annular carcinoma of third portion of duodenum.

Preoperative diagnosis. A preoperative diagnosis of benign tumor of the duodenum was made by one of us (B. P. M.) for the following reasons. Roentgen studies of the stomach and the colon indicated there was no tumor in either of these organs. The findings on palpation nullified it being a tumor of the pancreas because of its mobility and the ease with which it could be picked up between the thumb and fingers. The absence of occult blood in the stool and vomitus practically ruled out a malignancy, as did the duration of symptoms. So it seemed it could be little else than a benign tumor of the duodenum. This was strengthened by Dr. Cameron's roentgen findings of obstruction in the third portion of the duodenum.

Operative findings. A laparotomy was performed on February 11, 1935. A right paramedian incision was made and the old scar and hernial sac were removed. The only abnormal findings in the abdomen was a hard mass measuring 7.5x5 cm., situated in the third portion of duodenum and ending abruptly at duodenojejunal junction. The entire tumor was retroperitoneal and the superior mesenteric vessels passed over its distal third. In addition there were a few moderately enlarged regional lymph glands. The peritoneum was incised and the tumor was exposed (fig. 5). It was found to be an annular tumor of the duodenal wall completely encircling the lumen. The mass felt smooth, had a cartilaginous consistency and did not invade the surrounding structures, being freely movable.

Because of its location, it was impossible to remove the tumor, so a gastrojejunostomy was performed. An enteroanastomosis between the jejunum and the duodenum through the transverse mesacolon would have been a more suitable operation but the tumor mass occupied that portion of the duodenal wall necessary for this anastomosis. A small section of the tumor was removed for diagnosis. It was impossible to take out a larger one on account of hemorrhage. It was not believed that needling for a specimen would have been feasible because a deep puncture would have entered the lumen of the bowel. A regional lymph gland was also removed. In closing the abdomen, the ventral hernia was repaired.

Follow-up events. The patient made a good immediate recovery. All symptoms of intestinal obstruction were relieved and she was discharged from the hospital. While at home she developed a steady, dull pain in the right hypochondrium which became progressively worse and was controlled only by increasingly large doses of morphine. Later jaundice appeared which changed to a deep bronze in color. She became greatly emaciated and died eight months after the last operation.

Autopsy. In the region of the second portion of the duodenum, there is marked thickening of the wall in the form of a mass of firm pink tissue, the margins of which are not well defined, but which completely encircles the wall of the intestine at this point for a distance of 6 to 8 cm. and apparently infiltrates the adjacent portions of the pancreas and the soft tissues around the root of the mesentery, extending as far backward as the wall of the aorta and vena cava. No lymph nodes are grossly identifiable as such in this mass of tissue, and the lymph nodes in the mesentery

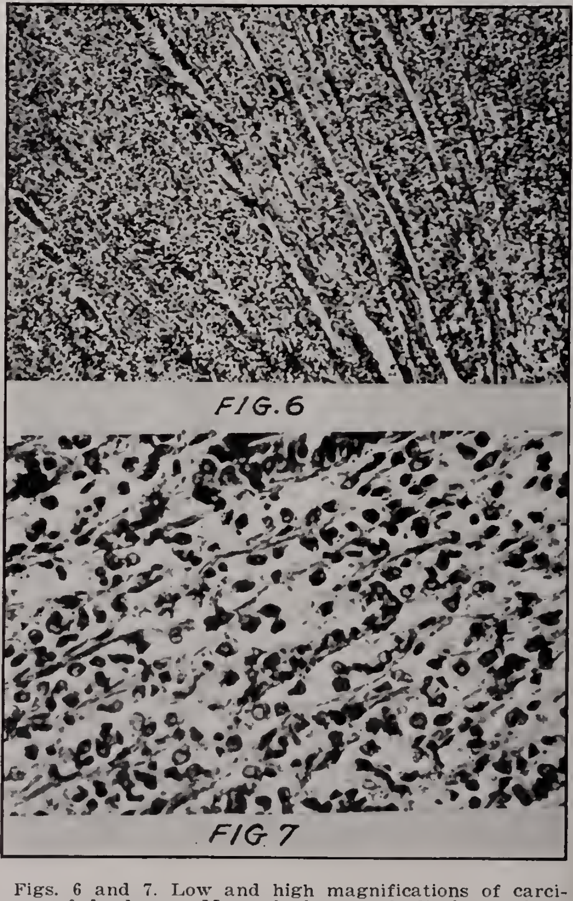


FIG. 6

FIG 7

Figs. 6 and 7. Low and high magnifications of carcinoma of duodenum. Mucosal photograph displays columnar arrangement and small type of cells.

and the body elsewhere contain no important gross changes. The stomach is markedly dilated with gas and fluid and the intestine below the duodenum is relatively collapsed. The common bile duct passes into this mass of tissue and is obstructed here; above this it is markedly dilated. Atrophic cirrhosis of the liver was present. All other changes in the thoracic and abdominal viscera are incidental to the above findings.

Microscopic report. In sections from the lining and wall of the duodenum in the region of the tumor and from the tissues around the root of the mesentery there is diffuse irregular invasion with very small cells which possess clear vesicular nuclei about 8 to 10 microns in diameter; very few mitotic figures are present. No cell outlines are visible as such but almost everywhere there is a clear space around the nuclei, sometimes containing a small amount of amorphous granular material, but for the most part clear or unstained, which probably represents cytoplasm of these cells. However, there are no distinct vacuoles or other evidences of secretory properties. The nuclei of the individual cells resemble those of lymphocytes but the cytoplasm does not.

In high and low magnifications of the sections from the mucosa of the duodenum there is a distinct corded or columnar grouping of these cells, which replace most of the normal mucosa, only a few small remnants of normal tubal epithelium being recognizable scattered here and there throughout the tissue (figs. 6, 7). It is from the pattern of cell arrangement rather than definite cell appearance that this is recognizable as a carcinoma. There appears to be very little differentiation in these cells; nevertheless cell division and growth of the tumor is quite slow.

Autopsy and microscopic studies in both cases were very kindly performed by Dr. Clyde R. Jensen.

CONCLUSIONS

1. Carcinoma of the small intestine is relatively rare.
2. Early signs and symptoms are those of intermittent obstruction and secondary anemia.
3. Progressive constipation is usually constant with an occasional attack of diarrhea.
4. A movable, tender mass may be present.
5. Roentgenologic studies are of especial importance from a negative standpoint.
6. Correct diagnosis is usually arrived at only on the surgical or postmortem table.
7. Resection and reestablishment of the lumen is the surgical procedure of choice.
8. Metastasis takes place early, and the prognosis is poor.

Sane Living Will Help Avoid Heart Disease. The fear of heart disease grips every one sometime during his life, it has been said, so Dr. Edwin A. Cameron furnishes the answer to the query embodied in the title of his article "Shall I Escape It?" in the September *Hygeia.*

If the reader is not more than 25 years of age he may with fair certainty answer this titular question in the affirmative, provided he leads a rational life as he proceeds to the age of 40. The duration of the patient's life is dependent to a great extent on the patient himself.

In the past twenty years, heart disease caused by hypertension has struck with particular violence among the manual laborers and among younger people in general.

VENEREAL DISEASE CONTROL IN WASHINGTON*

W. Ray Jones, M.D.
SEATTLE, WASH.

Each of the previous speakers at this meeting has undoubtedly convinced you that his subject was the most important of all elements in the saving of mankind. This really is true of social hygiene only, for if venereal diseases are not controlled, there soon will be no humans for the rest of these people to save.

FIRST WORK DONE AT THE PUYALLUP FAIR

An exhibit on social hygiene, including some venereal disease control material with an attendant in charge, was put on at the Western Washington Fair at Puyallup last fall. This exhibit was later incorporated as a part of traveling health exhibit which went all over the state under auspices of State Planning Council. A new one for this year's use is now on display at this meeting.

WORK DONE. DOING THINGS INCONSPICUOUSLY

The public is tired of the spectacular in disease control and dislikes hearing about venereal disease and sexology in particular, but is interested in social hygiene; hence, we stressed social hygiene and only let medical problems come to light subtly. We have accomplished practically nothing towards eliminating the taboo against the words gonorrhea and syphilis in Washington print. It did get in on the air, however.

We furnished three social hygiene talks and one on venereal diseases which were broadcasted by others. We were given credit by the speakers.

ASSISTING OTHER AGENCIES WITH MATERIAL

This served our purpose admirably. We furnished the material basis and the others put it over better than we could possibly have done. The social hygiene chairman of the state P.-T. A. made unlimited use of our material in furnishing programs to her various group chairmen. No medical material was given these people, however. To this end we furnished both lantern slides and prepared subject matter. That connection was most advantageous to us. But the chairman was accused by antimedical enthusiasts, and some seeking to promote initiative No. 111, of undue medical sympathies.

A suggestion is that physicians encourage their wives and others who are favorable to scientific medicine to join this organization and infiltrate wholesome ideas into its membership and not to oppose or criticise it. A few level heads on the inside of any organization can stifle "crack pot activities" inimical to our interests. If we are going to do what is best for humanity in general and ourselves in particular, we learn by experience that we need friends even in the camp of the enemy.

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*Report of Social Hygiene Committee, read before the Forty-Seventh Annual Meeting of Washington State Medical Association, Yakima, Wash., Sept. 1-2, 1936.

ENDS MAY JUSTIFY UNUSUAL MEANS

We furnished not only material but also at times speakers for weekly health lectures in a quasi-communistic school. When they found we were not of a different world and trying to "high hat" them, we came into social democratic favor.

As a noncommunistic activity we four times furnished the program for a Sunday evening church meeting. We were socially democratic at the very extremes, whenever we could do our cause a good turn.

BIRTH CONTROL

Because of being a controversial subject this was left alone in spite of heavy pressure from some quarters. We did look over the laboratory findings regarding certain chemical prophylactic suppositories and found that the drug did swell the spermatozoa heads as claimed. Also we compared those with other slides and found that the same kinds of swollen head spermatozoa were commonly found in the cervical secretions of my clinic women. That made it look as though this contraceptive suppository was no more efficient as a spermatocidal than the natural female secretions.

There might be some reason for investigating contraceptive medicaments and mechanical apparatuses upon a purely scientific basis, to really find out whether they are harmful or not and if they have any real effect or not. Otherwise some of the nonmedical people who may not be friends of ours might one of these days make monkeys of us.

TEACHING THE PUBLIC THE TRUTH REGARDING VENEREAL DISEASES

Seattle has the unusual distinction of turning a medical liability into an asset. They have made the clinics of King County Hospitals teaching units for both doctors and nurses. The basic student nurses, who get the B. S. degree at the University of Washington, must attend a series of lectures and pass the regular University examinations upon both the lectures and practical work in this subject. The public health and supervisory students also get both theoretical and practical work in venereal disease, but not so extensively.

We feel that teaching both the theoretical and practical things in venereal disease control to these nurses is worth more than all the public dissemination of information upon the subject that we could legally be permitted to give. Through this method others than the medical profession can now give clean, accurate, scientific information regarding venereal disease to the public.

The teaching through the University of Washington is one thing which has changed venereal disease control from smut to science. Venereals are now being treated as sick persons, not sinners.

FORMULATING A VENEREAL DISEASE CONTROL PLAN

Last December E. R. Coffey, State Director of Health, asked that we formulate a venereal disease control plan which would meet with the approval of the Health Department, the physicians and the public at large. Questionnaires were sent out, the response to which was negligible in furnishing constructive ideas.

Most answers were only some personal peeve, like restricting the druggist's counter prescribing or the cults from all venereal disease work. Each person wanted every one regulated except himself. Constructive ideas as to how they would do it were lacking.

A plan was evolved, however, depending upon the handling of venereal disease as an epidemiologic problem, not as a police or moral issue, with the actual treating of the cases being in the hands of the private physician. According to this set-up clinics are not to be established and only to be favored where the local profession wishes to be relieved of venereal practice. Persons are to be advised by all the agencies concerned to go to a private physician whenever possible.

WASHINGTON VENEREAL DISEASE CONTROL PLAN IN BRIEF

1. It aims to assist the physician in the epidemiologic control. The state laboratory will do all necessary work for confirming diagnosis, such as slides, Wassermanns and darkfields. The physician is to make the diagnosis and the laboratory only to confirm it. In indigent cases the state laboratory will also do work for treatment control.

2. The physician is to report in writing to the health officer when the diagnosis is made. There is no publicity, as the card number may be used instead of the person's name.

3. If the patient quits treatment prematurely, the physician is expected to notify the local health

officer, whose duty then is to bring him back or if he cannot, to let the physician know the true status of affairs.

This is somewhat at variance with the plan advised by the New York City Commission sent to investigate the prevention and control of syphilis and gonorrhea in Scandinavian countries and Great Britain, which recommended clinics. Our plan was acceptable, however, and Dr. Coffey asked me temporarily to take charge of putting it into operation until a full time man could be installed. This man is now on duty.

In addition to our plan it was suggested that we foster a teaching clinic, where physicians of the state could visit and improve themselves in handling venereal work. The ones already going at King County Hospitals were suitable to this work so without any ado they became incorporated into teaching venereal clinics. They are open to all duly accredited physicians without cost.

CRITICISM OF THE PLAN

This set-up depends entirely upon the private physicians' cooperation and in return protects against state medicine. Some may say, let the state care for venereal disease as such patients are a liability anyway. Some may say, if the majority wants that as a start in state medicine, let them have it. Do we want it?

There are other agencies also working toward venereal disease control along other lines for which they claim good results. Some towns by city ordinance, using subterfuges, license bawdy houses and put them under police control, and enforce regular examination of the girls. Where this condition prevails some suggest that there may be collusion and graft and racketeering and that this method could make official medical pimps of some doctors.

Some outsiders wonder why the police are so interested in the control of but not the elimination of prostitution, when the state law specifically prohibits bawdy houses. Regarding police control of prostitution as a means of reducing disease, agencies which should know the inside consider that it is a complete failure. One criticism which we find is that no provision is made regarding care for the diseased prostitute, she being merely cast out to make her way the best she can.

Would the public stand for a case of smallpox being merely sent out of town? Yet I found two towns in this state, whose mayors were well versed in epidemiology, doing the very thing of shipping diseased women to the next neighbor. In one city they were charitable and indigents were given a ticket out.

Inspection of prostitutes and protecting those who pass might be protecting the individuals who habituate the bawdy houses and penalizing the substantial citizenry. Some say that it is casting the infected women out among the youth who would never think of associating with them in their natural environment. It sends out infected women trained in the ways of seduction among the unsuspecting youth to improve the reputation of the brothel.

Some may not agree with all this and with good reasons. You just heard the doctor and the judge speak on medicolegal racketeering, so please think before drawing hasty conclusions.

Think over the Washington venereal disease control plan from all angles, not neglecting the criticisms, and then draw your conclusions from logical reasoning, not from blind sentiments. Personally, I am willing to admit that I am wrong any time, if something else is better for the majority, for what is best for the majority must be good for me too.

LAY MANAGED AGENCIES THAT DO SUCCESSFULLY CONTROL

In some parts the welfare workers have insisted upon having a hand in venereal disease control because, as they say, they have to care for the infected individuals, those dependent upon them and others who might be contacted. Say that it would be cheaper for them to take the matter in their own hands, set up venereal clinics to care for the infected ones and through these locate the sources and get the carriers under control too. On this basis several clinics were operated which from welfare and public health standpoint had quite a satisfactory set-up, but to you physicians who live in mortal fear of state medicine they were a nightmare.

Cheer up, though, as all but one were revamped along unobjectionable lines, and now one can be classed as either good or bad, depending upon the viewpoint. There the county commissioners and state welfare both contribute funds and a social worker, not a medical person, runs it. A group of physicians is employed by contract and cases are not limited to indigents. Those who can pay are charged nominal amounts. Now, like it or not, that clinic is running to the satisfaction of every one except the physicians who are losing patients to it and the taxpayers who are footing the bills and happen to be politically out.

A possibly satisfactory lay-managed, philanthropic, coast institution is in operation which withdraws from social circulation girls under twenty, infected with venereal disease or pregnant. Were it expanded so as to permit the neglected young venereally infected girls from all over the state to be cared for in one central institution, it could do three laudable things: (1) cure the girl, (2) possibly rehabilitate her to some extent, (3) protect others.

THE FAMILY PHYSICIAN'S POSITION IN CONTROL

Looking at venereal disease control impartially, one's respect for the private family practitioner must go beyond bounds, even though often his scientific knowledge upon the subject might be improved upon.

Regardless of his so often mediocre knowledge of venereal disease, some way or other he handles it so that his clientele has the very minimum of venereal infections, and regardless of his methods of preventing spread, it just does not spread. The spread is by those who break away from the private family practitioner and go galavanting around.

Regardless of advantages and propaganda furnished by many and various agencies from both within and without the state, Washington statistics show that the more important the family physician is in a community, the less there is of venereal disease. They also show that where social security is nearest complete, that is, where people have not to worry one bit regarding food and shelter, as in the state prisons and insane hospitals, the venereal disease incidence is the highest. Approximately 15 per cent is the percentage found infected upon entrance into these institutions.

Among the substantial citizens, that is, the clientele of the family physician who are rugged individualists entirely dependent upon their own efforts for sustenance of themselves and their families, such as found in the agricultural and suburban vicinities, the syphilis incidence is the lowest, much less than one per cent.

The problem now is of inducing the physician to do his part and economic necessity seems to be solving that. The physicians are now retaining their venereal patients for economic if for no other reason.

PUBLIC HEALTH AND POLITICS

The two just cannot mix. Politics is recognized as always a compromise, and there can be no compromise with disease, be it venereal or any other kind.

COMMITTEE CONCLUSIONS

1. Syphilis has been consistently decreasing for the past ten years with a slight increase during the past year.

2. Gonorrhea is increasing, principally due to women's knowledge of birth control and inclination to drinking which removes sex inhibitions.

3. State medicine is with us in venereal disease control as treatment clinics, and the only way to combat this is for the physicians to handle venereal disease as an epidemiologic problem, to report cases and sources and care for them in their offices rather than send them to clinics.

4. We need give our moral support to any nontax supported institution which will care for the irresponsible venereally infected persons.

5. Any method of venereal control other than handling it as an epidemiologic problem leads to politics, graft, racketeering and debasement of the medical profession in general.

6. This committee has cooperated with the parent teachers organizations, the Pacific Protective Society, the State Department of Health, radio stations and many other organizations, to put our social hygiene ideas over, even supplying health talks to communist groups.

7. A suggestion is that physicians be more ready to be willing workers on these committees, and to pay more attention to promoting the cause of scientific medicine in all possible ways; if necessary, being as socially democratic as disease.

GLOSSOPHARYNGEAL NEURALGIA. According to W. B. Hoover and J. L. Poppen, Boston (*Journal A. M. A.*, Sept. 26, 1936), trigeminal neuralgia and glossopharyngeal neuralgia are alike in all respects except the location of the agonizing flashes of pain and the localization of the trigger areas which set off these paroxysms. The "trigger" areas in glossopharyngeal neuralgia include the pharyngeal wall, the tonsillar region, the base of the tongue and rarely the ear, while trigger areas of trigeminal neuralgia occur in the buccal mucous membrane and about the lips, nose and various areas on the face. When the first or second divisions of the trigeminal nerve are affected there should be little or no difficulty in the differentiation of these two neuralgias, but when the third division of the trigeminal is involved a little more care must be exercised to differentiate it from the ninth nerve. Cocainization of the mucous membranes over the distribution of the ninth nerve will, as a rule, temporarily control the paroxysmal pain from this nerve. Medical and surgical treatment are available in the treatment of glossopharyngeal neuralgia. In the authors' experience trichlorethylene has been the only drug that has really been efficient in giving a marked amount of relief from this condition. It is administered by the patient's inhaling from 15 to 30 drops from three to four times a day. The surgical treatment of choice is the intracranial section of the ninth nerve in the posterior fossa.

Importance and Advantages of Prescription Writing In Medical Practice. According to E. Fullerton Cook, Philadelphia (*Journal A. M. A.*, Sept. 19, 1936), the therapeutic agents included in the latest Pharmacopeia were selected by a subcommittee consisting of eighteen physicians and five pharmacists. The principle governing the selection of medicines was exclusively that of therapeutic merit, as demonstrated through biologic and clinical experience. At the time of selection, even such questions as their status with respect to trademark or patent control were not to be considered. That the new Pharmacopeia might adequately represent the best therapeutic agents known to modern medicine, the former official list was carefully reviewed and about 100 substances eliminated as obsolete or unnecessary. Then all outstanding items in the newer materia medica were studied and fifty-four therapeutic agents were added to the official list. Another guiding principle influenced the selection of the U. S. P. XI titles. This was a theoretical ideal which the committee has maintained, namely, that only simple or basic substances or at least only concentrates of these, and no polypharmacal mixture, should receive Pharmacopeial recognition. This is based on the teaching that the physician should be free to exercise skill and judgment in the selection and combining of each medicine, that it may exactly meet the needs of his individual patient. It also affords an opportunity to the physician to employ one drug of known physiologic activity, if he so wishes, or to combine with it an adjuvant or such adjuvants as he believes desirable. While the ideal of medical practice is to use a single therapeutic agent of known physiologic value, it is often advisable to employ a suitable vehicle and to vary this so that the medicine may be distinctive. A pleasant flavor, an odor that suggests something other than a medicine, an added color are all legitimate enhancements to a prescription and make the medicine less likely to be duplicated. If the physician in practice is unfamiliar with suitable flavors, colors and vehicles, he has a tendency to order ready made preparations rather than to write a prescription containing the ingredients desired.

Other factors that sometimes lead to "ordering" in place of "prescribing" are complexity of the pharmaceutical problem involved or lack of information as to dosage, solubility, chemical reactions and other factors. In these strictly pharmaceutical problems the skilled pharmacist can often help the physician. He can also supply information concerning manufactured medicines, and cooperation with a competent pharmacist will frequently prove beneficial to the patient. The trained pharmacist serves as a liaison officer in the hospital, the medical center and the community. His specialized knowledge concerning the available medicines should be of inestimable value to the physician in both the selection of medicines and their combination. The prescription written for the individual patient is an important link in a perfected service. An original prescription shows evidence of professional skill and is not a product with which the patient is already familiar through its display in the type of medicine store where no professional knowledge is present and where such standards must necessarily be low. The latter situation is worthy of serious consideration, for the patient is likely to question the justification for a doctor's fee when it results in what may appear to be a "patent medicine" type of treatment. The use of abbreviated official titles written into a prescription and with a "non rep." order controls the situation, while the suggestion to "buy it at the drug store" opens wide the door to self medication. Further, the author emphasizes the restriction of routine hospital treatment to official medicines whenever possible. This program for the hospital has within it another possibility of far-reaching significance. It is realized that the medical student has little opportunity in his crowded curriculum to become familiar with official titles or even to gain practice in prescription writing. This is being recognized by a number of hospitals, and both medical and surgical interns are being given regular training in the use of official medicines and in prescription writing. The price of a prescription is no small item for consideration in the total cost of medical care. It should be the basis for a complete understanding and must be established on a sound and economically correct foundation. It is proper that the patient should pay for the medicine.

Efficient Laboratory Service in Syphilis Control Program. The laboratory service to be discussed here by Arthur J. Casselman, Camden, N. J. (*Journal A. M. A.*, Sept. 12, 1936), is limited to the examination for spirochetes and serologic tests for syphilis. These are the important public health laboratory tests used during the most infectious period. The ordinary darkfield examination should supplant substitute diagnostic methods of less reliability, such as india ink preparations, or staining by silver or by various aniline dyes. The darkfield examination for syphilis is a technical procedure which needs to be done under the best of conditions to make it reliable. Under proper conditions, the darkfield examination can be made the most accurate and efficient diagnostic procedure for the control of syphilis. This examination can be made more readily available to persons in distant rural communities by adopting the procedure of having specimens sent by mail to the central state laboratory. A substitute for the darkfield examination of the primary lesions, which is widely used but is recommended only as a very poor substitute, is a sensitive flocculation or complement fixation blood test. If the serologic test used is very sensitive, many cases will be diagnosed by the third week, and most by the fourth week of the presence of the primary lesion. On account of the fact that at present patients usually delay for about two weeks before coming to a physician for an examination of a primary lesion, the substitution of a sensitive serologic test for an immediate darkfield examination results in a delay in diagnosis and the institution of treatment of only about two weeks. The public needs more education to induce them to have earlier examinations, and better darkfield facilities must be provided. The serologic tests become tests of more importance about five weeks after the appearance of the primary lesion. Although the Wassermann test is still perhaps the most widely used, the various flocculation tests cannot be ignored by any private or public health laboratory. Wassermann tests are usually best done in a laboratory doing at least twenty-five tests a week. Kline or Kahn tests may be done in a small laboratory immediately and checked by Wassermann tests in a central laboratory later. The state laboratory should cooperate with local private and public health laboratories by supplying them with weak standardized and dried syphilitic serum, and also by supplying sensitive antigens for both Wassermann and flocculation tests.

Choice of Analgesics. R. W. Waggoner, Ann Arbor, Mich. (*Journal A. M. A.*, Sept. 26, 1936), states that aminopyrine has been most severely indicted for its supposed cause of agranulocytosis. There are still many who are afraid to prescribe this splendid analgesic because of the possibility of harm resulting from its use. The property of producing agranulocytosis may be due to the benzene ring, but many cases of industrial benzene poisoning have been noted without agranulocytosis. It is logical to believe that there may be an idiosyncrasy to the drug, just as there is to many other valuable drugs. It should not be discarded because of the unfortunate reaction in a few cases. Similar criticism of the use of cinchophen and neocinchophen has been raised because this drug is presumed to cause liver damage. Studies on experimental animals have not proved that these drugs have a constant specific liver toxic effect even when given in doses far in excess of the therapeutic dose. An analysis of the literature would indicate that these drugs may be prescribed safely when a proper indication for their use exists. Many of the barbituric acid derivatives have been used for the relief of pain. The high comparative dosage of these drugs necessary for analgesic action makes their routine use for such purposes inadvisable. Sensitization to acetylsalicylic acid is said to be frequent among allergic persons. Placing a small bit of the drug on the tongue and allowing it to dissolve will produce itching, cough or asthma in a short time in sensitized persons. The physician should recognize first of all the temperament and personality of his patient and, secondly, the situation, type and severity of the pain, and he should prescribe his analgesic medication accordingly.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of the Pacific Northwest

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OCTOBER, 1936

EDITORIAL

MANDELIC ACID FOR URINARY INFECTIONS

The recent discovery by Rosenheim[1] of the remarkable bactericidal action of mandelic acid in urinary infections is well worth the attention of the whole medical profession. Mandelic or amygdalic acid is derived from the bitter almond. Hitherto the most successful treatment of intractable urinary infections has been carried out by the use of the ketogenic diet introduced by Clark and Helmholz in 1931 by means of which the urine is maintained at a pH of less than 5.5 and the concentration of oxybutyric acid in the urine greater than 0.5 per cent. In order to obtain proper ketosis the diet must usually be weighed and the treatment is often accompanied by much discomfort and nausea.

Mandelic acid is administered in the form of the sodium salt and is followed by the excretion of the acid in the urine. This salt is prepared by neutralizing mandelic acid, 3 gm., with sodium bicarbonate, 1.6 gm. in water, 30 cc. This amount of solution constitutes a single dose of the acid, or one ounce, which is given four times daily before meals and at bedtime. With each dose of the acid is given one tablet (gr. 7.5) of ammonium nitrate. The water intake should be restricted to 1,200 cc. during treatment. This solution of the sodium salt of mandelic acid is practically tasteless and rarely gives the patient any discomfort. Less than one per cent of patients have nausea or vomiting, and about ten per cent have slight diarrhea.

The writer has been amazed at the rapidity and effectiveness of the acid in clearing up urinary infections within a few days that have withstood all curative methods by expert urologists for six months or more. It may be added that urologists are enthusiastic over the effects of mandelic acid. The most extensive use of the acid has been carried out at The Mayo Clinic. Cook and Butchel[2] record the treatment of 250 patients with mandelic acid for urinary infections during the past nine months. In a series of seventy-five of these patients the urine became sterile in 81 per cent.

Maintenance of the same low pH (5.5) is essential. When the urine is not sufficiently acidified by the mandelic acid and ammonium nitrate, hydrochloric acid by mouth has been sufficient in some cases to produce the required acidity. Cook and Butchel affirm that mandelic acid therapy will supplant the use of the ketogenic diet in 75 per cent of all cases of urinary infections. Occasionally the ketogenic diet and mandelic acid therapy must be used simultaneously. It must be noted that the value of both the ketogenic diet and mandelic acid lies in the treatment of bacillary infections of the urinary tract, coccal infections being little affected.

The use of mandelic acid has proven a great advance over all previous forms of treatment for urinary infections. It may be used much more safely than the ketogenic diet in the presence of duodenal ulcer, gout and diabetes mellitus. It should be unnecessary to add that no medicinal treatment of urinary infections takes the place of careful diagnostic study of the urinary tract and removal of all possible causes of infection, when feasible.

MEDICAL LEGISLATORS

Whenever a legislative session is in prospect, many questions arise as to what measures will be introduced affecting public health and the practice of medicine. In order to offer legislators adequate information concerning measures of this character, it is always necessary that a certain number of physicians be elected to the two legislative branches. Without their presence much unwise and freakish legislation is likely to be introduced and oftentimes enacted. In anticipation of the coming legislative sessions of our states it is gratifying to know that responsible medical men have been nominated for office. In the interest of public health and welfare as well as that of medical practice, physicians should exercise their influence for the election of these candidates.

In Oregon J. A. Best of Pendleton, Umatilla County, is a holdover Republican senator. The following men are candidates for election to the House of Representatives: J. A. Horsch of Bend, Deschutes County, is a candidate for reelection on the Democratic ticket, while F. H. Dammasch of Portland, Multnomah County, is running for reelection on the Republican ticket. C. F. Via of Forest

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[1] Rosenheim, M. L.: Mandelic Acid in Treatment of Urinary Infections. Lancet, 1:1032-1037, May 4, 1935.

[2] Cook, E. N. and Butchel, H. A.: Use of Mandelic Acid for Infections of the Urinary Tract. Proc. Staff Meet., Mayo Clin., 11:538-540, Aug. 19, 1936.

Grove, Washington County, and A. K. Higgs of Portland, Multnomah County, are candidates for the House on the Democratic ticket, while A. D. Waller of Eugene, Lane County, is running on the Republican ticket. The influence of the medical profession is enlisted to oppose a constitutional amendment advocated by a Eugene advertising dentist entitled, "Truth in Advertising." This measure is in reality a subterfuge to repeal the dentists advertising bill passed at a recent legislative session.

In Washington the following physicians have been nominated for legislative service: for the Senate, D. F. Bice of Yakima is running on the Republican ticket, while J. W. Henderson of Longview, Cowlitz County, has been nominated on the Democratic ticket. Candidates for the House on the Democratic ticket are R. D. Wiswall of Vancouver, Clark County, a legislative veteran who has served in several sessions. He is influential among legislators and trustworthy regarding medical legislation. W. C. Cameron of Tacoma, Pierce County, well known in the medical profession, is a candidate for representative. Although at the present writing the identity of bills inimical to the best public health interest and medical practice has not been declared, it is rumored certain measures are in preparation which will demand active efforts in opposition. It has been reported that the radical wing of the Democratic party has one or two bills ready for introduction which would establish some form of state medicine. It is to be hoped that these medical legislative candidates may be elected, since their presence and activities will probably be a determining factor regarding the passing of these measures.

The medical profession of Idaho will be represented in the coming election by D. C. Ray of Pocatello who is candidate for election to the Senate on the Democratic ticket. He is president of Idaho State Medical Association for the coming year.

THE SEPTEMBER MEETINGS

The annual meeting of Washington State Medical Association, held at Yakima last month, will be remembered for its many pleasing social features. While some annual meetings of past years have been characterized by controversies and friction, nothing of the sort was in evidence at this meeting. The spirit of friendliness and good fellowship predominated to a marked degree. The golf addicts had their cravings satisfied by demonstrating the ancient and honorable game during Sunday and Monday, characterized by sunshine and agreeable temperature. While the preparations for the dinner dance on Tuesday evening at the Country Club were somewhat marred by rain which prevented the dinner and entertainment on the lawn, subsequent adjournment to the Club House resulted in a friendly repast followed by dancing and social intercourse extending well into the following day. It was generally agreed that this was one of the most pleasing functions on record in the history of the organization.

The scientific program presented features of interest continuing through a two days program. Drs. Fall, Middleton and Clerf, guest speakers, were welcomed by good audiences. They were not strangers to many of the members, and their messages were greeted as valuable additions to the program. As was naturally to be expected, the visit of Frank Clancy was like welcoming one of the boys into the family gathering. His many friends were rejoiced to learn of his success in filling a difficult position in the national organization at Chicago. We all knew he would make good and this expectation has been assured. Changes in the by-laws and an increase in the annual dues have long been inevitable in order to promote the existence of the association and to enable it to fulfill necessary plans for future development and growth. Details of these changes will be available for all members when the proceedings are duly published. The hospitality and cordiality of the Yakima profession were duly appreciated and were effective in producing one of the memorable meetings of the Association.

During the week of the Washington meeting, Idaho State Medical Association was holding its regular meeting at Boise. As a result of the energy and activity of a few members, the Association has established a postgraduate course of lectures which this second session has demonstrated to be an outstanding educational venture in the Northwest. The plan is to secure lecturers from one educational institution which has the advantage of scheduling speakers who have been associated for years in teaching and are thus able to coordinate their courses of lectures into a harmonious program. This year the lecturers, six in number, were from Stanford University Medical School. They were Drs. Callander, Porter, Ruggles, Hein, Rhodes and Leake. Each presented a lecture during the five days of the course, thus covering a large field, embracing many features of medical practice. The program thus presented will compare with anything offered by any other state organization. The Idaho profession is to be congratulated on the opportunity of listening to such an unusually attractive program.

One outstanding feature of the program was the annual banquet on Tuesday evening, attended by more than four hundred guests, including many citizens beside visiting doctors. The speaker was Professor Ralph Lutz of Stanford who discussed the "European Crises of 1936," based on personal observations and intimate knowledge of conditions. For an hour he held the attention of his audience, offering them an unusually fascinating address. The attendance included men from all parts of the state, which means a long journey for those from the Panhandle region. It was unfortunate that the Washington and Idaho Associations held their meetings the same week, thus interfering with mutual visits that might have been possible. Timely correspondence between the officials of the two organizations will doubtless prevent such future conflict.

PAN-PACIFIC SURGICAL MEETING

The Second Congress of Pan-Pacific Surgical Association was held in Honolulu, August 6-14. Beside delegates representing thirteen national surgical associations in the United States, the Royal Australasian College of Surgeons was officially represented by delegates from Australia and New Zealand. There were delegates from Japan representing the Imperial University and the Association of Surgical Societies of Japan. Three delegates represented China. Most of the American delegates sailed from San Francisco and Los Angeles on the S.S. Lurline. There were one hundred and seven members in the party.

The outstanding feature of this year's Congress was the development of moving pictures in the teaching of surgical subjects. Dr. Malcolm MacEachern of the American College of Surgeons took with him a great number of movies covering a large range of surgical fields. Several of the speakers on the program had their own movies to illustrate their papers. The interest in the use of movies in presenting a surgical program was clearly demonstrated in the Section on Ophthalmology. Practically every operation on the eye was demonstrated. Three mornings were devoted to movies alone. After the movies had been shown, one of the leading ophthalmologists would point out the important features of the operation and then the movie would be reshown, demonstrating these points.

The influence of Hollywood on surgical teachings cannot be underestimated. At least two colored movies and several of the others were made under the direction of professionals. They were somewhat different from movies made by doctors without technical direction. The first impression was perhaps one of shock because, instead of seeing a surgical operation, the captions were such as to introduce some movie of a drama, but as the picture continued one began to realize the finished result. It is another instance of outsiders sometimes being able to present a subject better than those who are intimately associated with any problem. The same principles that make for the success of any movie apparently are the same in presenting a surgical subject. The material must be properly assembled, it must be well presented and there must be some train of interest running through the various steps which keeps the interest in the picture at a constant pitch.

The papers at the Congress seven years ago were poorly illustrated as compared to those at this Congress. Evidently America takes the lead in this phase of surgery because the Australian, New Zealand, Chinese and Japanese delegates all contracted for one or more copies of these movies. Twenty-five thousand dollars worth of movies were shown at one evening meeting. At first, one thinks this is a stupendous sum to be invested, but when one considers that these can be shown repeatedly on many occasions, the value does not seem so great. Eventually colored movies will be cheaper in price, but at the present time they are very expensive when produced under the direction of an expert director.

An outstanding movie was sent over by Dr. Saito of Japan. He was able to film the actual development of experimental thrombosis, embolism and fluoroscopic movies of structures of the various portions of the alimentary tract. These films were made on life convicts with two minute exposures at a time and repeated at intervals of six weeks in order to develop this result.

The Section on Gynecology and Obstetrics offered the most controversial subjects. Two papers dealt with low cesarean section and elicited very frank discussions. The subject of cancer of the female organs was discussed in several papers. Since both subjects are controversial, they were of vital interest to all the delegates. The program in this section was arranged by G. C. Schauffler of Portland.

The Section on Radiology and Roentgenology covered the field of use of radium in cancer in all of its phases. It provoked a great deal of discussion not only in general surgery but in special fields. The use of radium in the mouth and larynx was discussed in the Section on Laryngology in great detail. The general surgeons freely discussed the use of radium in cancer of the cervix and the pelvic organs. The whole subject of cancer was intimately associated with roentgenology from the standpoint of diagnosis. There were several papers discussing regional diagnosis in lesions of the abdomen and chest. The roentgenologists from Australia and New Zealand contributed largely to this section of the program. Carl Johannesson of Walla Walla was in charge of this section.

Surgical Research under the direction of Frederick L. Reichert of San Francisco was perhaps one of the outstanding sections. The scientific demonstrations, as well as papers, covering various fields of research offered a most interesting feature of the Congress. From Australia came research on the problem of hydatid cysts. The diagnosis is made by means of roentgenograms and the surgical treatment is removal of these cysts. This was of interest to American surgeons, insomuch as the frequency of occurrence in America is on the increase, particularly in the sheep raising areas. Whenever an obscure condition exists, they are inclined to think first of hydatid cysts rather than hysteria as the American surgeons are inclined to do.

Traumatic surgery, under the direction of Edgar Gilcreest, San Francisco, presented one of the very instructive sessions. From the Northwest, H. J. Wyckoff of Seattle covered the subject of the operable treatment for tuberculous lesions, while C. W. Countryman of Spokane offered a new operation for control of hemorrhage in gunshot wounds of the liver.

Another interesting section was devoted to plastic surgery. Howard Updegraff of Los Angeles was largely responsible for the arrangement of this program. The development in the past few years in this field of surgery was beautifully illustrated in movies and stills. The contribution of John Weeks of Portland on plastic surgery about the face and eyes and the work done by George W. Pierce of San Francisco, together with Dr. Updegraff's movies were outstanding features.

During the entire Congress the various surgeons addressed public meetings and gave radio talks on timely subjects. The city of Honolulu welcomed the surgeons in their most hospitable manner. A beautiful tropical setting in the Cocoanut Grove of the Royal Hawaiian Hotel was the scene of the opening ceremony. Following a pageantry of Pacific nations, the delegates and honor guests were presented, and addresses of welcome and an oration on surgery by Fred Rankin, of Lexington, Kentucky, were given. George W. Swift of Seattle was president of the Congress and his skillful leadership was largely responsible for the success and satisfaction of the meeting.

The mornings were devoted to scientific meetings while in the afternoons the delegates deported themselves in the ocean and on sightseeing tours about the islands. Many took occasion to fly over to the large Island of Hawaii to see the volcano from the air. Scientific and public meetings combined with private dinner parties kept the delegates busy in the evenings. Many of the delegates from the Orient took occasion to come to the States after the meeting and delegates from the States remained over to enjoy a prolonged vacation in the Islands.

The next meeting will be held in Honolulu in 1939. The following officers were elected: President, James Hardie Neil of Auckland, New Zealand; First Vice-President, Edgar L. Gilcreest, San Francisco; Second Vice-President, James R. Judd, Honolulu; Chairman of the Pacific Coast, Frederick L. Reichert, San Francisco.

PUBLIC FORUM

The United States office of education has sponsored public forum meetings in various parts of the country during the past few years. These meetings allow opportunity for public discussion of topics of the day, something in the spirit of the hot stove league of days gone by. Discussions are opened by well qualified leaders chosen for special knowledge of the subject and then opportunity is given those in attendance to talk it over. Portland is to have a series of such forums throughout the coming winter, the arrangements being made through the local board of education, under the administration of Charles A. Rice, superintendent of schools. Nationally known leaders have been chosen to preside at the Portland meetings.

Answers to a questionnaire sent out in Portland have shown that the greatest interest lies in distribution of foodstuffs and in education. Socialization of medicine, a topic of secondary interest according to the questionnaire, is to be discussed by Robert Lee Sutherland of Bucknell University. It is to be hoped that several well informed medical men will attend this meeting in order to bring out facts usually overlooked by proponents of the various schemes.

MEDICAL NOTES

Blood Pressure Publicity. In recent years the public has become informed concerning many forms of medical treatment, regarding which they might much better have little if any knowledge. Many have been unduly exercised over the belief that blood pressure above or below the average indicates serious disability. The opportunity of acquiring this unfortunate information has been promoted in some sections of the country. Thus enterprising seekers after revenue have set up blood pressure apparatus where the inquisitive individual can deposit a dime and "read your own blood pressure." In New York State a manipulator of such an apparatus has been prosecuted for practicing medicine without a license. W. A. Baum Company, whose baumanometers are in almost universal use, have emphatically denied they have had any hand in promoting this public form of medical practice. Such a procedure might wisely be suppressed wherever it is attempted.

Transactions of Pacific Coast Society of Obstetrics and Gynecology has been issued as Volume V, covering the proceedings for 1935. This is an attractive volume, presenting papers dealing with different phases of these specialties. Edited by Albert Mathieu of Portland, it offers a convenient and interesting compilation of papers presented at the annual meeting.

OREGON

Basic Science Examination. Examination in the basic sciences, including anatomy, physiology, pathology, chemistry and hygiene, will be held November 21 at 8:30 a.m. in Room B of the Main Library, Portland. Application blanks can be obtained from Charles D. Byrne, Secretary, at Eugene. These must be filed for examination by November 4. Reciprocity on basis of examination has been established with basic science boards of Minnesota, Wisconsin and Iowa.

Baby Home Vindicated. Charges of inefficiency recently placed against members of the staff of Waverly Baby Home were found to be unjust and without foundation by a committee of four appointed by the Multnomah County Medical Society. The home, sponsored and directed by J. B. Bilderback, has filled a useful place in Portland for twenty-five years, having cared for and placed over one thousand babies of all races, creeds and colors.

Hospital Addition. Approximately $3,000 has been spent on the Hospital at Dallas. A new driveway and ambulance entrance has been constructed, an elevator has been installed, new equipment has been placed and beds have been added.

Hospital Closed. Tillamook General Hospital was closed recently when Mrs. M. Medcalf, manager for the past ten years, left for Eugene to take charge of cooperative housing at the University.

Hospital Reopened. The Seaside General Hospital was reopened recently, with the installation of much new surgical equipment.

Health Officer Studies. Courtney Smith, health officer for Clackamas County, is taking postgraduate work at University of California. He will return December first to devote his entire time to public health work.

Leslie S. Porter has joined Albert Mount of Oregon City. Dr. Porter, formerly of West Linn, has recently completed his training at Alameda County Hospital at Oakland.

Wayne J. Page, recently interne at Orange County Hospital, California, has opened an office for the practice of medicine at Dallas.

Howard A. Wells, formerly of Hillsboro, has moved to Seaside, where he will be associated with Ray W. Logan.

E. F. Johnson, formerly of Ottowa, Ill., has opened an office at Ontario.

WASHINGTON

Hospital Addition. A new maternity wing has been completed at Cowlitz General Hospital at Longview and is now in use. Thirteen beds have been added, making a total of fifty in the hospital.

Marine Hospital Head Transferred. L. R. Hooper, for the past four years in charge of the United States Marine Hospital in Seattle, has been transferred to Staten Island, New York. He is succeeded by R. M. Grimm, recently from Washington, D. C.

Staff Changes at Medical Lake. Frederick Lemere succeeds R. H. Southcombe as neuropsychiatrist at Eastern State Hospital and J. P. Caldwell has been added to the staff as clinical director. Cecelia Schlotthauer comes from Los Angeles for interneship.

Chest Clinic. Seth L. Cox of the Washington Tuberculosis Association held a clinic at Shelton, September 10, at which fifteen persons were examined. This type of clinic is educational in nature, is sponsored by the local antituberculosis league and is financed by the sale of Christmas Seals.

Physician Publishes Book. F. L. Woods of Lynden has recently had a book, "The Woman Pays," published and placed on sale in the local book stores. The 300 page volume deals in a scientific and understandable manner with social and sex problems.

Physician Sentenced. Thomas P. Ratigan, Jr., of Seattle, was fined $10,000 and sentenced to seven years in the McNeill Island penitentiary, following his recent conviction of violation of the Harrison Narcotic Act.

Staff Change at State Hospital. George S. McCarty has replaced Adolph D. Tollefsen at the Veterans Hospital at Walla Walla.

Practice Sold. The W. E. Fordyce practice of Sunnyside was recently sold to Orvel Rockwell, formerly of Boulder, Colo.

C. E. Richards of Sumner suffered a broken hip recently and is in St. Joseph's Hospital, Tacoma.

R. C. McCartney, formerly of Coupeville, has moved to Oak Harbor.

Weddings. James Edwin Fairbourn was recently married to Miss Anne Noble at the Highlands, Seattle. Dr. Fairbourn is an interne at Harborview Hospital. Albert Seering of Mason City was recently married to Miss Marie Correll of Spokane. Clayton Wangeman and Miss Helen Ritchie were married in Yakima recently. Dr. Wangeman is associated with the Taylor-Richardson Clinic of Ellensburg.

IDAHO

New Health Center. Klamath County Health Unit will be housed in the former residence of the Hanks family, at Klamath Falls. The building is centrally located and will facilitate the administration of an effective health program.

Hospital Fire. Protestant Hospital at Baker was damaged to the extent of about $3,400 recently. Patients were transferred without difficulty.

Practice Sold. Harold Soucey has sold his office and practice at Priest River to Edward G. Bond of Portland. Dr. Soucey intends to take post-graduate work in the East, and later locate in California.

L. E. Patrick, who formerly practiced at Boise and has been located for the past eight years in Seattle as an eye, ear, nose and throat specialist, has returned to the former city where he will be associated in practice with Arthur C. Jones.

Dr. Marsh, formerly associated with the Indian Service on the coast, has opened an office at Winchester.

W. K. Bullock has opened an office for the practice of medicine at Emmett.

Wedding. Howard Rouse, formerly of Lewiston, and Miss Stevens of Salmon were married recently. Dr. Rouse intends to practice at Salmon.

OBITUARIES

Dr. John G. Byrne of Seattle, Wash., died August 28 following an operation, aged 65. He was born in 1871 and received his medical degree in 1894 at Northwestern University. He was long identified with the medical department of the army, having served in the Philippine Islands during the Spanish-American war. In 1916 he served on the Mexican border as a captain and during the World war was in France for eighteen months as a major. Following the war he was medical commandant at Fort Worden, Wash. He had practiced in the University district in Seattle since 1920. He was active in community affairs and took special interest in the American Legion.

Dr. Luke Henry Crawshaw of Pocatello, Ida., died September 5, three days after an emergency operation for appendicitis. He was 56 years of age. He was born in 1880 at Ogden, Utah, and received his medical degree from St. Louis University School of Medicine in 1909. He practiced in Ogden from 1910 to 1915, when he went to Chicago and New York to take special training in eye, ear, nose and throat. During his youth he was a missionary to England for the Latter Day Saints and spent a total of three years in this work. He was always a deep student of history and religion. He had practiced in Idaho since 1920.

Dr. Thomas E. Hoxsey of Spokane, Wash., died August 23 of coronary disease, aged 63. He was born in 1873, and received his medical degree at Barnes Medical College in 1900. He had practiced in Spokane for thirty-four years. He had worked hard and enjoyed a very large general practice.

Dr. J. M. Cannon of Pocatello, Ida., died September 6 of senility, aged 85 years. He was born in Pennsylvania in 1851 and graduated from the Hahnemann Medical College of Philadelphia in 1878. He practiced in Missouri until 1924, at which time he retired and moved to Idaho.

REPORTS OF SOCIETY MEETINGS

IDAHO STATE MEDICAL ASSOCIATION

PROCEEDINGS OF THE FORTY-FOURTH ANNUAL MEETING OF IDAHO STATE MEDICAL ASSOCIATION, OWYHEE HOTEL, BOISE, AUGUST 31-SEPTEMBER 4, 1936.

HOUSE OF DELEGATES

First Session

Monday, Aug. 31, 8 p.m.

Meeting called to order by President J. H. Crampton. The following Delegates were present: E. H. Elmore, Rupert; C. W. Pond, Pocatello; J. M. Lyle, Mowery; Alexander Barclay, Coeur d'Alene; H. J. Hartvigsen, Pocatello; N. C. Trauba, Boise; W. R. West, Idaho Falls; C. O. Moore, Paris; George Gaignard, Culdesac; E. N. Roberts, Pocatello; F. C. Gibson, Potlatch; A. C. Jones, Boise; C. R. Scott, Twin Falls; J. H. Einhouse, Moscow; F. M. Cole, Caldwell; J. W. West, Idaho Falls; H. W. Stone, Boise; J. H. Crampton, Lewiston.

Minutes of last meeting were read and approved. The following Credentials Committee appointed by Dr. Crampton: Pond, Gaignard, Jones. Report by E. N. Roberts, delegate to A. M. A. meeting was referred to general session. Moved by H. W. Stone that delegate to A. M. A. be allowed $100, carried. Secretary's financial report was read. Meeting adjourned.

Meeting of Council

August 31

The following members were present: J. H. Crampton, F. C. Gibson, F. M. Cole, J. H. Davis, H. W. Stone, D. C. Ray.

Moved by Gibson and seconded by Ray that all food stuffs and drugs carried by exhibitors in future meetings shall conform to A. M. A. standards. Carried.

Moved by Gibson and seconded by Stone that a committee be appointed to investigate practicability of securing a speaker from Europe for 1937 meeting. Carried. Meeting adjourned.

Second Session

Tuesday, Sept. 1, 7:30 a.m.

The House of Delegates met at breakfast. The following were present: F. M. Cole, J. M. Lyle, A. Budge, J. H. Crampton, C. W. Pond, J. N. Davis, J. W. Stewart, D. L. Alexander, H. W. Stone, H. E. Dedman, C. R. Scott, E. N. Roberts, Geo. Gaignard, H. J. Hartvigsen, J. H. Einhouse, Alexander Barclay.

The following Nominating Committee was appointed by the President: A. Budge, J. N. Davis, J. H. Einhouse.

The committee appointed by President Crampton reported favorably on the feasibility of securing a foreign speaker; further it was recommended that two afternoons of next session be given over to clinical bedside teaching. It was also recommended that a speaker of national prominence be secured as banquet speaker. General discussion followed which ended by motion by Alexander, seconded by Barclay, commending program committee on their efforts with recommendation that it follow its own judgment. Carried. Meeting adjourned.

THIRD SESSION

Thursday, Sept. 3, 8:00 a.m.

The House of Delegates met at breakfast.

Minutes read and approved. Report by Child Welfare and Orthopedic committee was read, composed of J. L. Stewart, E. N. Roberts, W. O. Clark. Discussed by Barclay and Cole. Moved by Cole that present committee be continued to represent the Association in future contacts with Dr. Dunshee. Seconded by Davis. Carried.

Moved by Scott, seconded by Davis, that not to exceed $2500 be appropriated for investment in the Foundation. Carried.

On motion by Stone and seconded by Scott it was voted that a committee be appointed to consider meeting place for next year. Lyle, Jones and West were chosen.

On motion by Stone, seconded by Davis, it was voted that a committee be appointed to contact State Board of Education September 15. Scott, Jones and Stewart were appointed. Meeting adjourned.

FOURTH SESSION

Friday, Sept. 4, 8:00 a.m.

The House of Delegates met at breakfast.

The committee on meeting place recommended Boise for next annual meeting. Moved by Davis and seconded by Cole that report be accepted. Carried.

The report of the Committee on Crippled Children and Orthopedic Work was given by Dr. Barclay in absence of Dr. Stewart as follows: Resolved that it is the sense and desire of this Association that three centers be established for the care of crippled and deformed children under the program as sponsored and outlined under the National Social Security Act. It is suggested that Pocatello in the South and East, Boise centrally located and Kellogg in the North and West be designated as these centers. Resolution adopted.

Moved by Scott that this committee's report be accepted and committee be continued. Carried.

Nominating committee, Alfred Budge, Chairman, presented the following report:

D. C. Ray, Pocatello, President.
A. C. Jones, Boise, President-Elect.
H. W. Stone, Boise, Secretary-Treasurer.
A. Barclay, Coeur d'Alene, Councilor in North.
C. W. Pond, Pocatello, Program Committee.

It was voted that the Committee on Arrangements be left to Council.

Drs. Laubaugh, Pittenger, Stewart, Trauba were appointed as committee for arranging clinical work at 1937 meeting.

Committee on securing exhibits, R. M. Sprague.

Moved by Davis and seconded by Trauba that report of nominating committee be accepted and the named officers be elected for the ensuing year. Carried.

The following report of Resolution Committee was presented by Alexander Barclay, Chairman.

1. Resolved: that this Association, through its Secretary, convey its thanks to the Boise physicians and their wives for their highly successful efforts in providing entertainment for our pleasure.

2. Resolved: that the Association go on record as being greatly pleased and gratified with the treatment of the management of Owyhee Hotel as rendered our Association, and the fact that every effort was made by them to make our visit in Boise one to be long remembered.

3. Resolved: that the Secretary be instructed to convey the thanks and appreciation of the Association to President Sprowls of the University of California for the fine and outstanding series of lectures delivered to this Association by the wonderful members of his Medical College Staff.

4. Resolved: that it is the sense and desire of this Association that three centers be established for the care of crippled and deformed children under the program as sponsored and outlined under the National Social Security Act, and it is strongly suggested that Pocatello in the South and East, Boise centrally located, and Kellogg in the North and West be designated as these centers.

5. Resolved: that the efforts of C. R. Scott in arranging our scientific program are greatly appreciated and the Association tender him, through our Secretary, our heartfelt thanks for this service.

6. Resolved: that the Secretary and retiring President, J. H. Crampton, be tendered a vote of commendation and thanks for their untiring labor during the past year which has been so successful from every standpoint.

MEETING OF COUNCIL

September 4, 1936

It was moved by Cole that an active committee be appointed in each society for development of cancer work and study. Carried.

Arrangements Committee was appointed by Pres. Crampton of Cole, West and Stone, to secure a banquet speaker for 1937 meeting.

Meeting adjourned.

AUDIT REPORT

For Idaho State Medical Association
from
September 1, 1935 to July 31, 1936

August 6, 1936.

Dr. Harold W. Stone,
Secretary, Idaho State Medical Association,
Boise, Idaho.

Dear Sir:

On your instructions we have made an audit of the accounts of Idaho State Medical Association for the period from September 1, 1935 to July 31, 1936 and submit herewith our report together with the following exhibits:

Exhibit A—Balance Sheet as of July 31, 1936.
Exhibit B—Statement of Revenue and Expense for the period from September 1, 1935, to July 31, 1936.
Exhibit C—Statement of Cash Receipts and Disbursements for the period from September 1, 1935, to July 31, 1936.

The period covered is for only eleven months so that some of the information can be used in the program for the annual meeting. In subsequent years the reports will include a full year.

All deposits and checks have been verified in detail and reconciled with the bank records. The membership cards have been verified with the cash receipts and the necessary corrections made.

Due to the resolutions passed at the last annual meeting to set aside $7,000 to start the Foundation Fund, there were purchased last fall seven bonds as follows:

2,000 American Falls Reservoir 6%	$2,160.00
3,000 American Telephone and Telegraph 5%	3,420.00
2,000 Brooklyn Edison Co., Inc. 5%	2,152.50
	$7,732.50
Accrued Interest and Commission	148.35
Total Cost	$7,880.85

We have examined these bonds and find them intact with all coupons attached. Coupons due January, 1936, and July, 1936, have not been cashed. They have a total value of $370 but since they have not yet been cashed and the Association is on a cash basis, we have not taken them into account in the attached exhibits. When these coupons are cashed the extra cost at time of purchase will be deducted therefrom.

In addition to the above securities the secretary has on hand a note for $150 endorsed to the Association and given as an addition to the Medical Foundation. This note is not included in the attached exhibits, as it is due to be paid in the next sixty days and will be taken into the books when paid.

The principal difference between the Statement of Revenue and Expense, and the Statement of Receipts and Disbursements is reflected in the collection credited to the local Societies and the disbursement for 1935 accounts payable, and for the bonds previously mentioned.

We have not calculated any depreciation on furniture as this seems unnecessary for so small an amount and for this type of organization.

All necessary adjustments have been made to bring the books into agreement with this report.

In my opinion the attached exhibits and this report reflect the true operations for the period under review, and the true financial position at July 31, 1936.

Very truly yours,
ELMER W. FOX,
Certified Public Accountant.

Exhibit A

BALANCE SHEET

As of July 31, 1936

Assets		
First National Bank		
Checking Account	$ 667.75	
Savings Account	3,889.94	
Total Cash Balance		$ 4,557.69
Investments		
7,000.00 Par Value Bonds (cost)	$ 7,732.50	
Accrued Interest and Commission on above Bonds	148.35	
Total Purchase Price		7,880.85
Office Equipment		185.65
Total Assets		$12,624.19
Liabilities and Surplus		
Due Local Societies		$ 315.00
Idaho Medical Foundation		7,000.00
Surplus		
Balance September 1, 1935	$10,022.86	
Less Transfer to Foundation	7,000.00	
	$ 3,022.86	
Net Revenue September 1, 1935, to July 31, 1936, per Exhibit B	2,286.33	
Net Surplus July 31, 1936		5,309.19
Total Liabilities and Surplus		$12,624.19

Exhibit B

STATEMENT OF REVENUE AND EXPENSE

September 1, 1935, to July 31, 1936

Revenue		
Dues	$ 1,588.00	
Registration Fees	711.00	
Refunds	229.50	
Scientific Display	385.00	
I.E.R.A.	2,491.19	
Medical Defense	126.00	
Northwest Medicine	326.00	
Interest Earned	120.84	
Total Revenue		$ 5,977.53
Expense		
Salaries	$ 695.00	
Printing	279.38	
Travel	830.00	
Periodicals	428.75	
Office Expense	412.19	
Telephone and Telegraph	94.09	
Legal and Auditing	125.00	
Insurance	12.50	
Convention Expense	814.29	
Total Expense		$ 3,691.20
Net Revenue (to Exhibit A)		$ 2,286.33

Exhibit C

STATEMENT OF RECEIPTS AND DISBURSEMENTS

September 1, 1935, to July 31, 1936

Receipts		
Dues	$ 1,590.00	
Registration Fees	711.00	
Refunds	229.50	
Scientific Displays	385.00	
I.E.R.A.	2,491.19	
Medical Defense	126.00	
Northwest Medicine	326.00	
Interest Earned	120.84	
Local Societies	222.00	
Total Receipts		$ 6,201.53
Disbursements		
Accounts Payable	$ 25.00	
Salaries	695.00	
Printing	279.38	
Travel	830.00	
Periodicals	428.75	
Office Expense	412.19	
Telephone and Telegraph	94.09	
Legal and Auditing	125.00	
Insurance	12.50	
Convention Expense	814.29	
Investments	7,880.85	
Refund of Dues	2.00	
Refund of Local Societies Dues	2.00	
Total Disbursements		$11,601.05
Excess of Disbursements over Receipts		$ 5,399.52
Reconciliation		
Cash Balances Sept. 1, 1935		
Checking Account	$ 899.93	
Savings Account, 1st Security	4,244.54	
Savings Account, 1st National	4,812.74	
Total Cash Balance		$ 9,957.21
Cash Balances July 31, 1936		
Checking Account	$ 667.75	
Savings Account, 1st National	3,889.94	
Total Cash Balance		$ 4,557.69
Net Reduction in Cash		$ 5,399.52

STATE DEPARTMENTS

OREGON

OREGON COUNCIL NEWS

Portland, Ore., Sept. 22, 1936.

The September meeting of the Council of Oregon State Medical Society was held at the Campbell Court hotel, Portland, September 2. Many of the Council members from other parts of the state were in attendance. It was decided to oppose the proposed constitutional amendment, advocated by an advertising dentist in Eugene, under the name of "Truth in Advertising Amendment," as this is but a subterfuge to repeal the honest dental advertising bill passed by a recent session of the legislature. Arthur Henry Johnson was elected to life membership in the Society.

The Council adopted a "tentative statement of principles and procedures for the control of contract practice," which was presented by the Executive Committee, a copy of which will be sent to all members in due time. It provides chiefly that contract practice in itself is not unethical, but that the ethical forms are specific and limited; that such practice even when initiated on an ethical basis, unless carefully watched, frequently develops commercial features which are a distinct contravention of established professional standards. For this reason the State Society must keep these contracts under constant observation and control. Only in this way may the future of sound medical service to the people not be jeopardized.

The statement contained extracts from "Principles of Medical Ethics" of the A. M. A., including the definition of "contract practice" and of "unethical contract practice." Included in the latter are: (1) solicitation of patients directly or indirectly, (2) underbidding to secure contracts, (3) compensation inadequate to assure good medical service, (4) interference with reasonable competition in a community, (5) prevention of free choice of physician, (6) conditions of employment which make it impossible to render adequate service to the patients, (7) contracts which because of their provisions or practical results are contrary to sound public policy. Each contract should be considered on its own merits, and decisions regarding it must be based on the ultimate effect for good or for ill on the people as a whole.

No individual or body must be permitted to make a direct profit from the remuneration of the physician. Solicitation of whatever form, direct or indirect, is frowned upon. Whether such solicitation is by the physician himself or a group of physicians or lay persons, organized as a clinic, a hospital or otherwise, acting through a business manager or other agent, all are equally unethical.

Underbidding is one of the most vicious features of unethical contract practice because it emphasizes price rather than quality of service and inevitably leads to inferior service. Rates should be based on the cost of providing service of established standards of scientific medicine. Under no circumstances is it ethical for one physician or group to take away a contract from another physician or group, by offering service at a rate which is inadequate to provide care consistent with established standards. The patient shall be free to select his physician from among all legally qualified and ethical physicians in the community.

A group of physicians organized as a clinic or hospital association has the same obligations to carry on their practice in an ethical manner as does an individual physician. A business manager is identical with an office employee of a private physician, and the assumption of the title of "business manager" does not confer any special privilege to employ commercialization, and deterioration of the quality of medical care should never be considered as a desirable substitute for private practice.

The contract practice in various parts of the state was discussed by a number of those present, and it seemed that those who were defending such practice had difficulty in upholding their side of the case, and they finally fell back on the chimera of socialization of medicine. It was pointed out to them that there is no more danger of the socialization of medicine than there is of the automobile or any other industry.

Adalbert G. Bettman,
Editor.

IDAHO

A MESSAGE TO THE IDAHO PROFESSION

Pocatello, Ida.,
September 24, 1936

I take this opportunity through Northwest Medicine to send greetings to you throughout the State of Idaho. I deeply appreciate the honor the profession has bestowed upon me by electing me as President of the Idaho State Medical Association for the coming year. During my tenure in office I hope to have your support, and ask you to feel free to present any problems you may have to me. With the support and advice of our Council we will try to work them out satisfactorily.

It seems to me we are now confronted with problems of real importance; one especially, whether we as medical men shall retain our personal relations toward our families, or shall be dictated to from some political authority who knows nothing about the confidences and workings of medical science. Let each and every one of us forget our petty jealousies, selfish ambitions, and strive as one body, those in and out of the Association, to accomplish the most that can be done for the welfare of all concerned. This great opportunity is yours as well as mine. We are in a great state and we are in a noble work. Let us all share it together.

D. C. Ray.
President.

BOOK REVIEWS

Williams Obstetrics. A Textbook for the Use of Students and Practitioners. By Henricus J. Stander, M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Cornell University Medical College, New York, etc. Seventh Edition. A Revision and Enlargement of the Text Originally Written by J. Whitridge Williams. 1269 pp. $10.00. D. Appleton-Century Company, Inc., New York, London, 1936.

In the preface the author makes the statement that an attempt has been made to retain as much of Dr. Williams' last revision as is consistent with the new developments in obstetrics. The text has been thoroughly revised and three new chapters added. The chapter on sex hormones and their relation to menstruation, pregnancy, parturition and lactation is a very good presentation of facts as far as the present knowledge goes. It is easily understood and the author is conservative enough in his statements, a very excellent quality where a subject is in a state of experimentation as is this one.

In the chapter dealing with amnesia, analgesia and anesthesia in labor the different types of drugs used to produce analgesia in recent years are given consideration, showing that there is no one ideal analgesic. A note of caution is inserted for the practitioner to be very cautious in accepting the optimistic reports of promoters of new drugs and methods. The chapter on induction of abortion and labor gives a clear conception of the indications and difficulties in the induction of therapeutic abortions. The newer idea in regard to the treatment of a tuberculous patient is stressed, namely, fewer abortions, resulting in a lessened maternal mortality in allowing a patient to progress to term.

The author again emphasizes the need of a clearer conception for the indication for doing cesarean sections in the light of the present abuse of the operation and the erroneous belief that the perfection of surgical technic has reduced the mortality. The last new chapter to the edition is entitled, "Diseases of the Kidney and the Urinary Tract." A knowledge of the variations in the tract associated with pregnancy is necessary for proper interpretation of roentgenograms and the treatment of the various normal changes and abnormalities. The text is conservative and well suited for the place it holds among students and the profession at large. The value of the book could be greatly increased by a more generous use of illustrations of mechanisms of labor rather than of abnormalities, and thus would aid in a better knowledge of the fundamentals. Helwig.

Basal Metabolism in Health and Disease. By Eugene F. DuBois, M. D. Medical Director, Russell Sage Institute of Pathology, etc. Third Edition, Thoroughly Revised. Illustrated with 98 Engravings. 494 pp. $5.00. Lea & Febiger, Philadelphia, 1936.

Those who look on the estimation of the basal metabolic rate as a mechanical procedure, which will turn out a machine-made diagnosis, should consult this book. They may be astonished to learn what a vast amount of laboratory and clinical work has been necessary to bring the apparatus to its present state of perfection. The observations and calculations used in making an estimation of the metabolic rate are based on assumptions which are sound but certain theoretical considerations may leave room for controversy. A discussion of the various factors on which our present technic is based is very interesting and informative from a physiologic standpoint, whether we intend to use it in practice or not.

This volume discusses metabolism of the various food stuffs, the loss of heat from the body, and various physical and chemical considerations having to do with metabolism. After an extended discussion of normal basal metabolism and its variations, disease processes which influence the metabolism are taken up. The influence of undernutrition, overnutrition and obesity, diabetes and various blood disorders are discussed. There is an extended discussion of basal metabolism in various disorders of the thyroid gland. The influence of the adrenals, the pituitary and the gonads is covered. Various disorders of the heart and kidney, influence of fever and of diseases of the nervous system are fully discussed.

Most of us do not possess as intimate knowledge of metabolism as we should. This book is recommended for study as a text on this phase of physiology, aside from its bearing on the estimation of basal metabolism. Those who use metabolic apparatus should have it as a reference work in connection with clinical practice. Watts.

Fundamentals of Human Physiology. Fourth Edition, by the late J. J. R. MacLeod, M.B., D.Sc., F.R.S. and R. J. Seymour, M.S., M.D., Professor of Physiology, Ohio State University. 424 pp. $2.50. C. V. Mosby Co., St. Louis, Missouri, 1936.

This is a new and extensively revised edition of a work which has had very favorable reception and wide use for a number of years. The chapters on vitamins and the endocrine glands have been enlarged and rewritten to conform with present day concepts. The discussions of metabolism and immunity have been shortened and simplified. Other changes have been made in this spirit, namely, to modernize and simplify.

This work is, as the name implies, a discussion of fundamentals only. It is intended as an introduction to physiology or for broad review of the subject. An obvious effort has been made to keep the text free from highly technical terms and useless repetition of arguments over controversial points. If knowledge has not yet crystallized in certain fields, a simple statement to that effect is made and the most widely accepted theory is quoted. There is sufficient discussion of anatomy to link structure with function in all fields and the book is replete with clarifying diagrams. This small volume covers the entire field of physiology briefly, simply and well.

Endocrinology In Modern Practice. By William Wolf, M.D., M.S., Ph.D. 1018 pages with 252 illustrations. Cloth, $10.00 net. Philadelphia and London: W. B. Saunders Company, 1936.

This volume is full of dependable information concerning endocrines and their influences for weal or woe. In a very comprehensive manner it covers the whole field of endocrinology in modern practice, not only the definite endocrinopathies but also the influence exerted by endocrines in diseases that have been considered nonendocrine. A free discussion of laboratory findings and their interpretation elevates the presentation to a level far above that of the book that simply recites signs, symptoms, etc.

More and more, the trend of medicine is toward earlier recognition of disturbance in function through demonstration of deviation from normal in laboratory determinations. The demonstration of deviations in a given case offers a foundation for formulating an opinion as to the factors involved in the disturbance which presents as a clinical picture. Such an opinion serves as a basis for attempts at rational as contrasted with empirical therapy. Endocrinology has greatly developed this very vital part of medicine.

This volume impresses one with the tremendous advances that have been made in this field in the past twenty-five years. The reviewer is reminded of the one volume of medicine prepared by Osler which covered wonderfully well the field of medicine as practiced in that day. Here is a volume, in size comparable to that one volume, which in a similar manner covers the development in this new and most intriguing field. It is a volume to keep at hand for use in daily practice as Osler's one volume of medicine was utilized twenty-five years ago. C. F. Davidson.

Microbiology and Pathology for Nurses. By Charles F. Carter, B.S., M.D., Director, Carter's Clinical Laboratory, Dallas, Texas, etc. With 138 Text Illustrations and 14 Color Plates. 682 pp. $3.00. The C. V. Mosby Company, St. Louis, 1936.

The author states that he has attempted to follow the outline prepared by the Committee on Education of the National League of Nursing Education. The fundamentals of microbiology are presented to emphasize that it plays an important part not only in disease, but in the processes of nature, agriculture and industry. The general principles of microbiology are discussed with a study of various bacteria, cultural methods and destruction by physical means, chemicals and other facts. Their relation to disease is discussed, with their actions in the body and its defenses through immunity and administration of vaccines and serums. Special bacteriology discusses the particular organisms and their origin in various conditions of disease. The student can obtain much information from these chapters. The part on pathology discusses causes of disease and body defenses against them, inflammation and repair, infectious diseases. Diseases affecting various organs are considered in considerable detail. Such discussions apply to individual organs and the pathologic conditions resulting from various diseases. Following each chapter are questions for review, dealing with the chapter which it has outlined.

Disability Evaluation. Principles of Treatment of Compensable Injuries. By Earl D. McBride, B.S., M.D., F.R.C.S. Assistant Professor in Orthopedic Surgery, University of Oklahoma School of Medicine, etc. Three hundred seventy-four illustrations. 623 pp. $8.00. J. B. Lippincott Co., Philadelphia, London, Montreal, 1936.

To the doctor who has had little experience in traumatic surgery or evaluating injuries, this book would serve very much as a dictionary to one who is a poor speller or who has a limited understanding in vocabulary. In states where cases are referred either for treatment or evaluation of injury to men of "proper political" standing rather than to men of experience in this highly specialized type of work, it is recommended that this book be bought by the gross and distributed among their medical referees.

In his preface the author states that "guessing (on evaluation of injury) casts reflection on integrity and qualifications. Wide difference of medical opinions breeds suspicion of prejudice. If an opinion is to be expressed, it must be based upon the same sound, scientific reasoning as is used in arriving at any medical diagnosis."

The author has attempted to evaluate injury to the body structure by an appraisal of each factor which enters into the disability. For example, the four factors making up the total anatomic result are: (1) length, (2) alignment (total) by inspection and measurement, (3) apposition judged by roentgenograms taken in two planes, (4) angulations. This is illustrated in the following example:

Suppose a patient has normal length	100 per cent
Suppose a patient has poor alignment	75 per cent
Suppose a patient has half apposition	50 per cent
Suppose a patient had 10 to 15 angulation	50 per cent
	275
	275 ÷ 4 = 68+ per cent

The same system of determining value is applied to functional and economic results. The book is most complete in its analysis of injury of every part of the body: bones, nerves, joints, abdominal viscera, brain, eye, ear and all other structures together with most valuable suggestions for treatment of many injuries. Kelton.

Arthritis and Rheumatic Disease. By Maurice F. Lautman, M.D., Consultant to the United States Public Health Service Clinic and Director of the Department for the Study of Arthritis, Levi Memorial Hospital, Hot Springs, Arkansas. 177 pp. $2.00. McGraw-Hill Book Company, Inc., New York, 1936.

So much has been published of late concerning arthritis that the layman as well as the physician is interested in the subject. This volume offers readable and reliable information for consumption by the layman. After answering the question, what is arthritis, there is a discussion of its causes with predisposing factors, including body build, circulatory changes, digestion and elimination and arthritic soil. Precipitative factors refer to tonsillitis, intestinal disturbances, infections and other causes. Rheumatoid disorders include fibrositis, muscular rheumatism, sacroiliac strain, sciatica, neuritis, bursitis. Focal infections are located in tonsils, teeth, prostate, intestines, gallbladder, appendix and sinuses. Under treatment are mentioned rest, diet, hydrotherapy, vaccines, climate. Medical treatment is not stressed, since this is the field for the physician. The book offers many helpful suggestions, but not in the way of selfmedication. Competent medical advice is stressed as essential.

Exophthalmic Goiter and Its Medical Treatment. By Israel Bram, M.D., Medical Director, Bram Institute for the Treatment of Goiter and Other Diseases of the Ductless Glands, Upland. Second Edition, Completely Revised and Enlarged with 79 Illustrations. 456 pp. $6.00. The C. V. Mosby Company, St. Louis, 1936.

The author defines exophthalmic goiter or Graves' disease as a chronic, rarely acute, neuroendocrine dysfunction, characterized by increased metabolism, loss in weight, tremor, emotionalism, persistent heart hurry, weakness, dermographia, and usually, not constantly, by hyperplasia of the thyroid gland and exophthalmos. He believes individuals have a Graves' constitution, or in other words, a pre-Graves status, and that psychic trauma precedes the clear cut symptoms. This has been true in 90 per cent of his series of 5,000 cases.

The author believes that toxic adenoma makes the body ill, but in exophthalmic goiter the body makes the thyroid ill, and the chapter on these two diseases is replete with detailed, differential diagnosis. He believes that exophthalmic goiter is as easily perventable as tuberculosis, and by modifying the predisposition in early childhood, when the environment is such as to predispose Graves' disease, prevention in later life will occur. The prevention of exciting factors in adult life, such as occupational, psychosexual disturbances and maladjustments in marriage relationships, reduces the susceptibility of this disease. The physician himself must be endowed with unusual psychotherapeutic skill to dominate his patient, and in the most extreme nervous individuals he must be able to interpret the language of the maladjusted mind; he must be capable also of properly setting, much as is done in bone surgery, the various psychic sublaxations and fractures.

The final chapter, devoted to case histories and the ultimate cure of these patients, is of extreme interest to the unbiased surgeon. Ninety per cent of a series of 2,600 cases of Graves' disease, followed by the author for three to twenty years, were completely cured, and the remaining 10 per cent are socially and economically useful. The author throughout his work fails to compare or mention for the unbiased internist the thousands of helpless, struggling, dejected creatures who have been returned to normal tranquality and poise of useful life following surgical intervention. BOWLES.

SURGICAL CLINICS OF NORTH AMERICA. Issued serially, one number every other month. Volume 16, Number 3. New York Number, June, 1936. 277 pp. with 79 illustrations. Per Clinic year February, 1936, to December, 1936. Paper, $12.00; cloth, $16.00 net. Philadelphia and London; W. B. Saunders Company, 1936.

This volume contains contributions from twenty-one surgeons, all but one of whom are New York practitioners. The clinical reports cover a large range of subjects. An outstanding feature is the symposium on "Surgery for Pain." Under the heading, "Neurosurgical Measures for Relief of Pain," is a contribution by Stookey which deals with this subject by injection of alcohol and section of neuron I and by section of neuron II. Total thyroidectomy for relief of pain in angina pectoris is presented by Weeks. The surgical treatment of sciatica by Cave consists of section of the iliotibial band. Zinc peroxide in surgical infections by Meleney describes the treatment of gangrenous skin infections with suitable zinc peroxide applications. There are descriptions of many other surgical operative procedures with an abundant supply of illustrations.

DISEASES OF THE NOSE AND THROAT. For Practitioners and Students. By Charles J. Imperatori, M.D., F.A.C.S., Professor of Clinical Otolaryngology New York Post-graduate Medical School, Columbia University, New York, and Herman J. Burman, M.D., Instructor of Clinical Otolaryngology, New York Post-graduate Medical School, Columbia University, New York. 480 Illustrations. 723 pp. $7.00. J. B. Lippincott Company, Philadelphia, London, Montreal, 1935.

This book is written in a clear, concise style. The authors state that it is for the beginner as well as the specialist of ear, nose and throat work. The illustrations throughout are numerous and clear, depicting special instruments and apparatus, various steps in the different operations and many anatomic and pathologic specimens. Each subject is covered in a thorough manner and the authors confine their discussion to those phases which have chiefly clinical application. The first part of the book is taken up with general necessary office equipment, and various conditions of the nose and sinuses. In the chapter on sinusitis is brought out a general discussion of sinusitis in children and the author's ideas and treatment. His manner of treatment is one of conservatism. In the latter part of the book he takes up most thoroughly the larynx, esophagus and trachea, going minutely into the anatomy and pathology of these parts. He gives in detail his method of doing bronchoscopy and esophagoscopy, in which he is one of the foremost authorities. He might have given a longer and more thorough dissertation on allergy. This contribution to the literature is useful not only to the specialist but to the general man as well.

F. H. WANAMAKER.

THE OPERATIONS OF SURGERY. By R. P. Rowlands, M.S. Lond., F.R.C.S., Eng. Late Surgeon to Guy's Hospital, etc. and Philip Turner, B.Sc., M.S., Lond., F.R.C.S. Eng. Consulting Surgeon to Guy's Hospital, etc. Eighth Edition. Vol. I. With 435 Illustrations (38 in Color). 1045 pp. $10. Wm. Wood & Co., Baltimore, 1936.

The entire book has been revised. Many operations with detailed technic are included. This volume I includes operations on the upper and lower extremities, vertebral column, head, neck and thorax. In special departments of surgery, such as otology and laryngology, only emergencies and well established operations are given. Operations requiring special training as a specialty are not given.

As an example of what the reader might expect to find, the section on operations on the thorax, contains one chapter on the breast, one on paracentesis, empyema and wounds of the pleural cavity, one on the lung and mediastinum, and one on the heart and pericardium. "Stress is laid on indications for and against operations and special attention is called to the possible pitfalls, errors and difficulties that beset the path, not only of beginners but also of the most experienced."

It is a very practical book. Its English viewpoint will be appreciated. This is very apparent in the chapter on spinal anesthesia. This is mentioned, because this chapter will seem inadequate to many readers, but the book will be most stimulating. METHENY.

AN INTRODUCTION TO MATERIA MEDICA AND PHARMACOLOGY. By Hugh Alister McGuigan, Ph.D., M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Illinois, College of Medicine, Chicago, and Edith P. Brodie, A.B., R.N., Formerly Director School of Nursing, Vanderbilt University, Nashville, Tenn., etc. With 71 Text Illustrations and 18 Color Plates. 580 pp. $2.75. The C. V. Mosby Company, St. Louis, 1936.

The author states that knowledge of physiologic and therapeutic action of drugs depends to great extent upon animal experimentation, but knowledge obtained without use of the pharmacologic laboratory belongs to a past generation. Every effort possible should be made to discredit the use of remedies of unknown therapeutic value. No physician can aspire to know the pharmacology and therapeutics of all drugs. This book attempts to present a working knowledge in this field. Part I, dealing with elementary materia medica, considers important chemistry of drugs, their active principles, weights and measures, solutions and other essential principles necessary for a knowledge of this subject. In Part II, featuring advanced materia medica and application, are considered doses, administration and medicines and drugs which act on different organs such as digestive, nervous, respiratory and genitourinary systems, circulation of the blood, and other applications. The study of each drug includes properties, dosage, therapeutics and other considerations. At the end of each chapter are questions for review covering the essential facts presented.

TRUTH ABOUT MEDICINES

PROPAGANDA FOR REFORM

General Decision on Allowable Claims for Wheat Bran. On the basis of the evidence reviewed, the Council on Foods has considered the place of wheat bran in the human diet and has adopted the following general decision: (1) Bran may be useful as a source of bulk in the diet. The position of the council in regard to "Constipation Statements in Lay Advertising for Roughage Foods and Bran" (*The Journal,* Nov. 5, 1932, p. 1605) is reaffirmed. Any reference in labels or advertising directed to the public regarding the content of bulk or crude fiber cannot be permitted unless there is reproduced the complete statement in the Committee Decision referred to, regarding a permissible claim for a roughage food. It is not permissible to advertise the use of bran in the treatment of constipation "due to insufficient bulk." This statement by itself encourages self treatment. (2) The iron content of untreated bran is high. Special claims for bran as a source of iron in the diet cannot be recognized, however, until definite evidence is obtained and accepted by the Council to show that the iron of untreated bran is available to the human body and, in the amounts which might ordinarily be ingested, contributes an appreciable portion of the daily requirements. If iron salts should be added in the preparation of bran for human consumption, the presence of added iron should be declared on the label, in accordance with present regulations of the Council. (3) The amount of vitamin B_1 in bran is insufficient to permit any special claims therefor. (*J. A. M. A.*, September 12, 1936, p. 874.)

"Subenon" for Arthritis and the American Chemical Society. For several years the annual sessions of the American Chemical Society have been accompanied by extraordinary publicity in the lay press concerning new chemical discoveries applicable in the field of medicine and particularly for the treatment of disease. This year, however, even before the opening of the annual session of the American Chemical Society, newspapers throughout the United States carried a story, emanating apparently from the publicity department of the American Chemical Society, indicating that a new specific had been developed for the treatment of rheumatism and arthritis. The item submitted to the press stated that "a compound which curbs arthritis, economically the most devastating of all chronic diseases, was reported by Dr. Herman Seydel (President Seydel Chemical Co., Jersey City, N. J.)." It was said that "the new compound involving medicinal application of benzoates, has proved effective in clinical tests covering two years at the Jersey City Medical Centre." Furthermore, Herman Seydel, Ph.D., reported that "in this calcium double salt of benzyl succinic and benzoic acids we offer the solution of an age-old problem. It remains for the medical profession to adopt it and employ it properly." Thus the speaker to appear before the American Chemical Society put the medical profession of this country squarely "on the spot" with a demand that it use his proprietary remedy. The secret behind this is, of course, the fact that the Seydel Chemical Company is a manufacturing organization which specializes in the manufacture of "benzoic compounds." In his statements "Dr." Seydel mentioned a favorable experience with the treatment at the New York Postgraduate Hospital. The superintendent of that institution, W. B. Talbot, telegraphed protesting reference to the New York Postgraduate Hospital in the newspaper reports of Herman Seydel; that the hospital had used experimentally his product "Subenon" but found it useless in arthritis; and that no favorable reports had been given out from this hospital about Subenon. As the publicity associated with "Dr." Seydel's exploitation of his product came to newspapers with the sponsorship of the American Chemical Society, a well known organization presumed to be composed of scientific men subject to the usual ethics which control scientific workers, press associations and newspapers cannot be condemned if they failed to recognize the definitely commercial background and effect of this item. Neither can thousands of unfortunate sufferers from arthritis be condemned if in response to this item they demand of their physicians that they be given opportunity to test this unestablished drug. The American Chemical Society cannot dodge its responsibility in this case. It is neither within its province nor within its competence to give critical judgment on the treatment of disease. If it wishes to maintain the respect of the medical profession and the public, the American Chemical Society cannot permit itself to be used as an agent for unestablished proprietary remedies in the exploitation of the sick. (*J. A. M. A.*, September 12, 1936, p. 878.)

Seydel Arthritis Treatment—The Aftermath. The tempest created by the premature publicity for the proprietary product promoted by Seydel through the American Chemical Society session in Pittsburgh has subsided. The paper of Seydel was read in a closed meeting of the American Chemical Society. Following a discussion of the paper a statement was issued by Dr. Edward Bartow, president of the American Chemical Society, Dr. Thomas Midgley, chairman of the board of directors, and Dr. Norris Shreve, chairman of the division of medicinal chemistry, jointly with Dr. Leech, Director of the Bureau of Foods, Drugs and Physical Therapy of the American Medical Association. This statement said:

"In the discussion it was pointed out that much more work is necessary before the product can be considered as of established value. Representatives of the American Chemical Society and the American Medical Association agreed that the difficulties which have ensued in the past will be eliminated in the future."

The Journal of the American Medical Association commends the stand taken by the American Chemical Society in the control of its future publicity and readily offers its facilities to reputable organizations that seek information on topics definitely within the medical field. (*J. A. M. A.*, September 26, 1936, p. 1056.)

Ru-Mari. The Bureau of Investigation reports that it has recently received many inquiries requesting information on a product that is sold in England and the United States under the trade name "Ru-Mari." Ru-Mari is one of a list of products with the "Ru" prefix sold by Ru-Mari, Ltd., First Avenue House, High Holborn, London, W. C. 1. Other Ru-Mari products advertised in England include "Ru-Mex," described as a "pain-relieving lotion for external application, including headaches, sprains, strains, sunburn, open wounds, bruises, etc." "Ru-Malax—a pleasant liquid Cascara preparation," and "Ru-Mol—Vitamin Capsules (A & D)." A booklet entitled "The Treatment and Cure of Rheumatoid Arthritis, Rheumatism and Allied Ailments," bearing the London company address, describes Ru-Mari as "strongly antacid in character and capable of destroying every disease germ in the body." In the same booklet appears the statement: "It cannot be too strongly emphasized that Ru-Mari is a cure and not merely a relieving agent." The American version, "A Treatise on Arthritis and Allied Conditions," emanating from 3149 Wilshire Blvd., Los Angeles, considerably modifies the curative claims. The United States postal laws prohibit promoting through the mails schemes to obtain money by means of false and fraudulent pretenses. The trade package of Ru-Mari, bottled in the U. S. A., modestly claims the nostrum to be "a scientific aqueous alkaline formulation designated to attack and correct harmful acid conditions, through its effective diuretic action." From an examination of the product in the A. M. A. Chemical Laboratory, it may be calculated that it contains approximately 0.65 per cent sodium carbonate (Na_2Co_3, anhydrous) equivalent to 1.76 per cent hydrated sodium carbonate (washing soda) and 0.30 per cent potassium hydroxide (lye) with a trace of organic material. A product essentially similar may be prepared by dissolving 1.76 Gm. of washing soda and 0.3 Gm. of pure lye in water to make 100 cc. of solution. Thus Ru-Mari is a typical nostrum, essentially an alkaline solution, advanced as specific for conditions in which it could not possibly have specific effects, and supported by testimonials from persons better known for artistic attainment than for medical knowledge or scientific judgment. (*J. A. M. A.*, September 12, 1936, p. 894.)

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SOME CIRCULATORY PROBLEMS OF SURGERY*

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MADISON, WIS.

Although the accessories to accurate diagnosis are available to all branches of medicine, so specialized has surgery become that little opportunity is afforded the surgeon for the cultivation of a facility in theoretical and technical details without his immediate field. The exactions of modern surgical practice require not only the background of a rounded medical experience for the surgeon himself but also the close cooperation of the general practitioner, the internist and the several laboratory consultants in his daily work. In the mutual interest of the patient and the surgeon this coordination should be more regularly invoked to solve the circulatory problems of surgery.

From the immediate consideration of this subject we would exclude those topics which deal directly with the surgery of the cardiovascular system, a field of increasing independent importance. Even after this elimination the circulatory problems of surgery present a wide range of approach. Obviously they may be central or peripheral, affecting the heart or any of the vascular ramifications. Pain and other symptoms may arise from disturbed nutrition which in turn may reflect local inflammatory reactions or an anoxemia of local or remote circulatory origin. The difficult problem may be diagnostic or the serious question of circulatory prognosis may also obtrude itself into any proposal of operative interference.

An important source of diagnostic confusion arises in recent cardiac decompensation which is not infrequently mistaken for an abdominal condition requiring surgery. Over a period of ten years twelve seriously decompensated patients have been encountered in the Wisconsin General Hospital who had recently been subjected to cholecystectomy on the basis of congestive symptoms mistaken for cholecystitis. On the face of the clinical picture and in the light of correct surgical practice this sustained error would seem improbable. True, the manifestations of cardiac decompensation may be gastrointestinal, nausea and vomiting may be intractable, jaundice appear and pain, tenderness and right upper quadrant spasm completely mislead, but the constitutional reactions of infection, fever and leukocytosis are usually lacking or inconsequential and a careful history and physical examination will fix the circulatory responsibility in the vast majority of patients. As a rule, they show dyspnea, cyanosis, venous engorgement and other evidences of congestive failure, and objective studies, as electrocardiography, may be helpful in the differentiation. In the last analysis surgery is not ordinarily resorted to in the acute phase of cholecystitis unless empyema of the gallbladder be suspected.

In the course of acute rheumatic fever a complicating pericarditis may befog the issue and abdominal surgery be undertaken upon the suspicion of an intraperitoneal complication. In a child the nausea and vomiting attendant upon the pericarditis may direct attention to the abdomen and the confirming signs of pericardial inflammation be deferred. Particularly is the masquerade realistic, when pain is referred to the abdomen and spasm of the abdominal muscles and constitutional evidences of inflammation supervene. Two incidental concomitants of pericarditis have been emphasized by Riesman,[1] namely early tachypnea and delirium. Both of these clinical features may protect against needless surgery. More recently has been offered the clinical observation of Capps' points of tenderness[2] along the free border of the trapezius and in the anterior cervical triangle. These tender areas are regularly seen in diaphragmatic pleurisy, but they are also present in those cases of pericarditis in which the pleuropericardium is involved in its lower third. Delay of surgery may seem ill-advised, but one is commonly gratified to see the entire clinical proof of a pericarditis evolve before his eyes, if he be permitted a few hours' study.

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*From the Department of Medicine, University of Wisconsin.

*Read before the Forty-seventh Annual Meeting of Washington State Medical Association, Yakima, Wash., Sept. 1-2, 1936.

Coronary occlusion unquestionably presents the most serious diagnostic problem in this direction.[3] To begin with, the profession until the present generation perpetuated the lay diagnosis of "acute indigestion" for death from coronary occlusion. The implications of this charge are double. In the first place, we were deceived by appearances, but upon closer scrutiny there was some superficial ground for the error. Over a period of time before the ultimate startling episode that we now recognize as arising from acute coronary occlusion, many of these patients have had digestive disturbances on effort after eating. To carry the analogy further, these victims of sudden coronary occlusion have pain beneath the lower sternum or in the epigastrium. Nausea and vomiting are common symptoms and there may be jaundice, epigastric tenderness and spasm. Fever and leukocytosis are further misleading elements in the clinical picture of coronary thrombosis. To the confusion of the uninitiated, relief may be attended by eructations of gas or the voiding of large amounts of clear urine.

The classic case of acute coronary occlusion with its status anginosus, status gastralgicus and status dyspneicus offers no great diagnostic problem, but an increasing incidence of clinical variants is being appreciated. For the recognition of such the utmost care and skill are required. Of particular importance is the accurately reconstructed history that reveals evidences of circulatory stress or the warning signal of digestive disturbance only upon effort after eating. With this background the prior occurrence of anginal or anginoid attacks will have added significance. In the actual painful episode of coronary occlusion, the type and location of the pain will have an importance second only to the concomitant dyspnea and evidences of circulatory embarrassment. The feeble heart sounds, falling blood pressure and rising pulse, basal congestive rales, engorgement of the liver and leaky, clammy skin are directional signs of the utmost importance. As stated, the leukocytosis and the fever of coronary occlusion may be misleading rather than helpful guides. The pericardial friction rub, arrhythmia, remote embolic phenomena and electrocardiographic changes are commonly too long deferred to act as other than confirmatory evidences of the coronary thrombosis.

Important though the recognition of these cardiac situations is, the protection of the patient requires a diagnostic receptiveness on the part of the attending physician. Scarcely less reprehensible than the erroneous diagnosis of an abdominal condition requiring surgery in a patient suffering from congestive heart failure, pericarditis and acute coronary occlusion would be the oversight of such a complication in a cardiac subject. For example, a patient with chronic cholecystitis may suffer from myocardial insufficiency or experience a coronary thrombosis, in which case he should properly be treated for his circulatory condition. On the other hand, the inflammatory condition in the gallbladder may be relighted and the problem become surgical rather than medical. Hence, while it is a serious responsibility to advise surgery in the presence of such grave cardiac conditions, it is more culpable to deny surgery, if there be a serious complication requiring such management.

If the matter of diagnosis be settled, there still remains the everpresent question of the prognosis of surgery from a circulatory standpoint. Admittedly there is a large individual element in the reaction of patients to surgery. Obvious factors, as the anesthetic agent, the nature and duration of the surgical procedure, blood loss, trauma and the like must enter into the determination of this operative load. Beyond the physical details there remain the imponderable psychic factors. Still a knowledge of the mechanism of circulatory strain and overstrain may be forecasted through biochemic and physiologic methods of study and by this token a solution for much of the problem may eventually be forthcoming.

The functional integrity of the myocardium is closely bound with the glycogen metabolism.[4] The glucose of the liver is delivered to the blood stream upon demand and in the presence of insulin and oxygen becomes the glycogen for muscle energy. With muscular activity lactic acid is given off. This acid may then enter into the phosphagen cycle, or be oxidized into carbon dioxide and water, or returned to the liver to renew the glucose phase. The vital position of glycogen in the metabolism and ultimate function of the myocardium is indicated by its presence in this site after all other depots have been exhausted. Under normal conditions the cardiac glycogen can not be materially reduced if the oxygen is adequate. Deprivation of oxygen leads to rapid loss of glycogen and constitutes the clear physiologic explanation of the myocardial intolerance to anoxemia. Hence, vital though glycogen is to proper myocardial activity, an adequate supply of oxygen (with insulin) holds the key to circulatory efficiency. The oxygen requirement of the heart muscle depends upon the demands of effort. Fatigue reduces the myocardial efficiency and increases the oxygen expense of the cardiac labor in terms of the energy output. These fundamental facts enter directly into the problem of the circulatory risk of surgery.

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[1] Riesman, D.: Personal communication.

[2] Capps, J. A. and Coleman, G. H.: Experimental and Clinical Study of Pain in Pleura, Pericardium and Peritoneum. Macmillan Co., New York, 1932.

[3] Middleton, W. S.: Coronary Disease, Minnesota Med., 10:743-753, Dec., 1927.

If for the sake of argument we take the known cardiac subject with an admittedly pathologic condition requiring surgery, the first decision to be made is, are we confronted with a situation demanding surgery of necessity or surgery of election? Although this problem arises in practically every surgical procedure, it assumes commanding importance in the presence of a cardiac condition. If the operation be deemed absolutely essential to the health or the recovery of the patient, several further questions must be answered. What is the myocardial reserve? And if narrow, what is the expectancy of life without surgery and how will it be affected by the stress of the operation?

Clearly there is a limited group of patients in whom surgery of necessity must be denied because of the obvious risk of precipitating death. Furthermore, surgery may be withheld from certain patients, already living on borrowed time, when a fair assessment of the circulatory risk determines a probable termination from this cause before incapacitation from the surgical condition. Such a decision might well be required in a woman with congestive heart failure who was found to have an ovarian cyst of proportions sufficient to induce independent symptoms.

In the last analysis these are the unusual subjects and in a vast majority the circulatory objection to surgery is relative. Accordingly an unusual advantage accrues to the evaluation of the surgical risk from the standpoint of a well standardized measurement of the functional capacity of the heart. The Heart Committee of the New York Heart and Tuberculosis Association[5] has established such a basis for study. By this yardstick, patients with organic cardiac disease are divided into four groups as follow:

FUNCTIONAL CAPACITY

Grade I. Patients capable of ordinary and unusual effort without symptoms referable to the circulatory system; no limitation of work or earning capacity.

Grade II. (a). Patients capable of ordinary effort without circulatory symptoms but experiencing some difficulty upon unusual effort; no limitation of work or earning capacity. (b). Patients incapable of ordinary effort without circulatory distress; definite limitation of work and earning capacity.

Grade III. Patients experiencing circulatory symptoms at bed rest; no work nor earning capacity.

Interestingly this group fits quite regularly into the formula of Peabody and Wentworth[6] which was based upon vital capacity figures. Thus, patients with a functional capacity of Grade I will be found to have a vital capacity in excess of 90 per cent of the predicted normal; Grade II a, from 70 to 90 per cent; Grade II b, from 40 to 70 per cent; and Grade III, less than 40 per cent. While instrumental methods for establishing myocardial integrity and reserve are notoriously unreliable and in certain instances misleading, even the feeblest support should not be spurned in this difficult problem. To the complete cardiovascular history and physical examination may be added in the specific case vital capacity determinations, electrocardiography, roentgenography (or orthodiagraphy) and at times the study of blood gases; but by and large the accurate and detailed subjective story of the patient's response to effort will afford a better index of the circulatory reserve than any known objective examination. This opinion is held in spite of the growing weight of the electrocardiogram in diagnosis and prognosis. In the last analysis its place may occasionally be primary but as a rule it is a supportive and supplementary procedure, whose future offers much promise. At present few clinicians would make the decision of the surgical risk solely on this basis except in the cases of unusual errors in conduction.

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[4] Meakins, J. C.: Modern Muscle Physiology and Circulatory Failure, Ann. Int. Med., 6:506-513, Oct., 1932.

[5] Criteria for Classification and Diagnosis of Heart Disease. Criteria Committee of The Heart Committee of the New York Tuberculosis and Health Association, Inc., New York, 1932.

[6] Peabody, F. W. and Wentworth, J. A.: Clinical Studies of Respiration. IV. Vital Capacity of Lungs and Its Relation to Dyspnea. Arch. Int. Med., 20:443-467, April, 1917.

The circulatory hazard of surgery can not be resolved into arbitrary terms of percentile chance or mortality. From the obvious hazard of even a minor load to the patient with a functional capacity of Grade III, we ascend in the scale to the asymptomatic cardiac subject with a capacity of Grade I. In general, it may be assumed that the cardiac patient with a functional capacity of Grade I or II a should withstand a major surgical procedure without undue circulatory strain or adverse manifestations. The positions of the two extremes are apparent; it is in the intermediate zone that we are called to exercise the utmost skill in prognosis. While it is true that many frankly decompensated patients survive even major surgical procedures without evident disadvantage, the reverse is likewise true, namely, serious circulatory setbacks in apparently adequately compensated individuals. Many circumstances contribute to this paradox. A combination of these factors deserves comment. By common consent the singular escape of seriously handicapped patients may arise from the unusual precautions taken in their care. This situation should spur us to extend the same care to all of our surgical patients.

Surgery having been decided upon in spite of the obvious circulatory hazard, it behooves us to seek the sources of cardiac stress thereto incident in the hope of minimizing or obviating the same for the protection of the patient. The psychic factor is a distinct but extremely variable source of circulatory strain in the surgical subject. Accordingly, for his welfare every effort must be exerted to lessen the psychic traumata. The professional contacts, it should be superfluous to state, must be most considerate without transferring the concern of the medical attendants. Visitors should be limited to trusted friends and relatives who will observe the same consideration. Mild sedation is sound therapy in raising the threshold of stimulation. Preparatory to anesthesia and in the postoperative period more active sedatives in the form of opiates are in order.

The election of the anesthetic agent is still a poorly defined matter. If there be no drug idiosyncrasy, local anesthesia and various types of nerve block offer peculiar advantages; but they lose the opportunity for psychic detachment as gained by general anesthesia. The same may be said of spinal anesthesia which has the specific advantage of local anesthetics but at the same time the peculiar threat of circulatory embarrassment if its level reaches the intercostal muscles. In spite of the sweeping statements in support or condemnation of the several agents used for general anesthesia by inhalation, there is surprisingly little accurate clinical or laboratory information. Out of Embley's experimental proof[7] of a paralytic action of chloroform upon the myocardium has grown the widespread idea of cardiac dilatation as the common cause of circulatory collapse under general anesthesia. This thought prevailed in spite of Levy's conclusion[8] that faults of conduction must constitute the only important cause of death under chloroform anesthesia. Levine's clinical observations,[9, 10] although very limited, supported this source of cardiac stress during and following surgical operations.

Kurtz, Bennett and Shapiro[11] have recently completed an extended study of the electrocardiographic changes under various anesthetic agents. Significant was their observation that among several anesthetics (including ether, ethylene, nitrous oxide, cyclopropane, vinyl ether, chloroform, tribrom-ethanol and procaine) chloroform gave the highest incidence of arrhythmias. Then, too, arrhythmias appeared more frequently in abnormal than in normal hearts. Only 21 per cent of this entire series of 109 surgical patients escaped such disturbances of rhythm. In their study the replacement of a normal rhythm by a totally irregular pulse at a rate of over 100 in the course of a general anesthesia proved ominous as indicating the initiation of auricular fibrillation or multiple focus ventricular tachycardia.

Aside from such toxic manifestations there occur certain physical stresses in the induction of a general anesthesia. Meyer and Middleton[12] found a sharp rise in venous pressure during this period which they attributed to increased muscular effort and altered respiratory function. Although the general level of venous pressure remained somewhat higher through the maintained period of anesthesia, significant alterations were noted only upon reflex stimulation in periods of lightened anesthesia. From these studies and general clinical observations it may be reaffirmed that the physical demands of ordinary life exceed those of an operation under a carefully administered general anesthetic.[13] This position is valid only when the patient is protected against every unnecessary trauma, blood loss and needless prolongation of surgery and it likewise presupposes the highest proficiency in the anesthetist. All other details being equal, for the average surgical procedure in the borderline circulatory risk, the choice of the anesthetist takes precedence over that of the surgeon.

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[7] Embley, E. H.: Causation of Death during Administration of Chloroform. Brit. M. J., 1:817-821, April 5; 885-892, April 12; and 951-960, April 19, 1902.

[8] Levy, A. G.: Exciting Causes of Ventricular Fibrillation in Animals under Chloroform Anesthesia, Heart, 4:319-378, 1913.

[9] Levine, S. A.: Acute Cardiac Upsets Occurring During or Following Surgical Operations, Their Mechanism and Management. J. A. M. A., 75:795, Sept. 18, 1920.

[10] Levine, S. A.: Paroxysmal Tachycardia as Occasional Upset during Ether Administration. Am. J. Surg. (Anesthesia Supp.), 36:48-50, April, 1922.

[11] Kurtz, C. M., Bennett, J. H. and Shapiro, H. H.: Electrocardiographic Studies during Surgical Anesthesia. J. A. M. A., 106:434-441, Feb. 8, 1936.

[12] Meyer, O. O. and Middleton, W. S.: Venous Pressure in General Anesthesia. J. Clin. Investigation, 8:15-24, Dec., 1929.

The preliminary discussion gave due consideration to the fundamental requirements of the myocardium for proper function, namely adequate glucose, oxygen and insulin. The supply of the essential glycogen is maintained through these life lines. Even surgery of election may not neglect them. Particularly is it important to insure their adequacy in the handicapped heart. Hence the success of a hazardous procedure in such a subject will be favored or insured, if glucose, oxygen and perhaps insulin be used before and after the surgical procedure. Adequate rest and digitalization are indicated to improve the margin of safety in certain slightly decompensated patients. Such measures of protection are especially important in diabetic subjects where coronary sclerosis is so common. The proper preparation of these patients demands the nice adjustment of diet and insulin to afford adequate available glycogen and at the same time to avoid hypoglycemia.[14]

Patients with chronic gallbladder disease constitute a further group of notoriously poor circulatory risks who should receive every precautionary measure of pre- and postoperative care. The circulatory hazard of thyroidectomy has been greatly reduced by rational measures of rest, diet, sedation and iodine. The response of the auricular fibrillation of thyrotoxic subjects to quinidine is usually gratifying and the control of this arrhythmia, even in the absence of congestive signs, is desirable before surgery is undertaken. Digitalis should be reserved in this relation for those thyrotoxic patients with decompensation. The circumstance of tachycardia will be considered in another connection. Transfusions should not be spared, if blood loss or infection be a factor in the picture; but in the present relation the hemoglobin level is especially important as the vehicle for oxygen.

Dehydration is a serious threat to a certain special risk group of patients with renal insufficiency, especially those with prostatic hypertrophy. Surgeons have properly sought to remedy this situation by the administration of large amounts of fluid by mouth and parenterally. Every cubic centimeter of fluid excreted as urine, not to mention other channels of fluid elimination, must pass through the circulation and the cardiac burden incident to its absorption and transport may be overwhelming. Closer attention to the circulatory response to such increasing loads may avert disaster in the making.

Postoperative tachycardia has probably been less rationally met than any other symptoms occurring under these circumstances. Instead of logically analyzing the background of this distressing symptom, recourse is frequently had to digitalis. Not only may digitalis lessen the coronary flow,[15] but Cohn and Steele[16] have also proved that one of the actions of this drug is to reduce the size of the heart. In decompensation where the heart is enlarged such an action will operate advantageously to increase the minute volume output by improving the stroke efficiency, but in postoperative states the heart ordinarily is not enlarged and a reduction in its size through the tonic action of digitalis may be a distinct handicap. An exception to this rule may be cited in the tachycardia subsequent to thyroidectomy. Here myocardial exhaustion may supervene. Hence there appears to be a definite place for the intravenous use of thevetin, a cardiac glucoside with one-seventh the toxicity and one-seventh the potency of ouabain. By this agent the tachycardia may be controlled and the circulation steadied.[17] But in general it is more rational to approach this symptom through the control of its cause. The opiates are logical sedatives for the disturbed patient.

The basic need of the myocardium for oxygen and glucose must not be overlooked in the stress of the postoperative convalescence. Insulin may or may not be required to insure the proper utilization of the glucose which may be given parenterally if the alimentary route be inexpedient. A word of caution must be given regarding the indiscriminate use of hypertonic solutions intravenously in the presence of circulatory stress. Biosmosis will insure the early isotonicity of the circulating body by drawing fluids from the tissues. This circumstance may lead to an unforeseen overload of the right heart. Transfusions, with or without antecedent infusions of normal saline or glucose solution, will answer the requirements of tachycardia from blood loss. Shock, one of the commonest causes of postoperative tachycardia, demands separate consideration.

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[13] Marvin, H. M.: The Heart during Anesthesia and Operative Procedures. New England J. Med., 199:547-551, Sept. 20, 1928.

[14] Büdingen, T.: Ernährungs-und Stoffwechsel-Störungen in Herzen (Kardiodystrophien) beim Diabetes Mellitus und beim "Insulinschaden." Zentralbl. f. Herz. u. Gefässkrankh, 17:215; 231; 1925.

[15] Gilbert, N. C. and Fenn, G. K.: Effect of Digitalis on Coronary Flow. Arch. Int. Med., 50:668-683, Nov., 1932.

[16] Cohn, A. E. and Steele, J. M.: Studies on Effect of Action of Digitalis on the Output of Blood from Heart: I. Effect of Output of Dog's Heart in Heart-Lung Preparations; II. Effect on Output of Hearts of Dogs Subject to Artificial Auricular Fibrillation; III. Part 1. Effect on Output in Normal Human Hearts. Part 2. Effect on Output of Hearts in Heart Failure with Congestion, in Human Beings. J. Clin. Investigation, 11:871-955, Sept., 1932.

[17] Noble, T. B., Jr. and Chen, K. K.: Personal Communication.

Reconciling the theories of exemia of the Special Investigation Committee on Surgical Shock[18] and that of reduced blood volume of Blalock[19] and others, Meek[20] has suggested the explanation of shock on the basis of a decrease in the effective circulatory volume. Clearly such a mechanism would admit of the inclusion of several of the presently considered theories of shock. The clinical picture is a composite one in which low arterial blood pressure is the most uniformly recognized constant. The patient is usually alert mentally, even though seriously prostrated. Weakness advances; the pulse is rapid and thready; the skin is pale or dusky, cold and clammy. The deep tendon reflexes are reduced to absence. Among the vital changes are the reduced alkali reserve and ultimate acidosis. Reduced oxygen consumption is the rule. Blood concentration has been noted by some observers, while others have found a reduction in the total volume.

The management of surgical shock begins with its prophylaxis. As in military practice the surgical patient must be protected against heat loss by adequate bedding. Fluid loss should be made up by parenteral fluids, if the patient be unable to take the same by mouth. If hemorrhage be an appreciable factor, transfusions should not be deferred until shock appears. Painful stimuli must be reduced to a minimum by appropriate therapy. The glycogen reserve should be built up preoperatively by a high carbohydrate diet. After the surgical procedure further protection may be gained from parenterally administered glucose. Undoubtedly sodium bicarbonate will serve a useful purpose in preventing and combatting the acidotic contribution to surgical shock. Oxygen is coming into its proper place as a postoperative measure, whose chief indication is the prevention and control of anoxemia with its abetment to shock.

With the inception of surgical shock the attack must be well ordered and promptly executed. All of the indications which have been considered in its prophylaxis must be more vigorously met in its actual management. Morphine may be used short of respiratory depression. Heat loss must be prevented by proper covering, but sweating from this source should be avoided. Restoration of body fluids by mouth and parenterally must be systematically enjoined. Crystalloids in solution pass rapidly from the blood stream into the tissues and with the increased capillary permeability of acidosis this tendency is more marked. Hence any advantage from infusions of normal saline or glucose solution must be short-lived. Gum acacia solution, a colloidal solution, has certain obvious advantages in restoring the effective circulatory volume, but Hartmann and Perley[21] have recently demonstrated serious changes in the liver from its repeated administration and even its occasional use must be held sub judice.

Blood transfusions find a natural place in the reestablishment of a normal circulatory volume where there has been blood loss. Here the need for an increase in the oxygen-carrying elements of the blood is apparent, but this circumstance is not so pressing if merely the plasma content of the blood be reduced. However, even these cases of surgical shock are benefited by transfusions. Intravenous infusions of sodium bicarbonate may prevent or control acidosis. Cortin has recently been advised as a logical instrument in maintaining or restoring the plasma level.[22] As yet this application of the extract of the cortical portion of the adrenal bodies is in its experimental stage, but epinephrine has long since been discarded as useless in surgical shock. Cardiac support is rarely indicated under these conditions.

Acute pulmonary edema is an occasional circulatory complication of surgery. According to Welch this situation results from an incapacity of the left ventricle to discharge the blood delivered from the pulmonary circuit. Profound dyspnea initiates the picture and it is accompanied by a harsh cough which soon becomes productive of a frothy, clear or blood-tinged sputum. Early pallor usually gives way to a dusky cyanosis. A sense of apprehension prevails in spite of the recurrent order of the distress. Crackling rales and suppressed breath sounds are demonstrable in the bases of the lungs.

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[18] Cannon, W. B., Cowell, E. M., Fraser, J. and Hooper, A. N.: Reports of Special Investigation Committee on Surgical Shock and Allied Conditions. No. 2. Investigation of Nature and Treatment of Wound Shock and Allied Conditions, Dec. 25, 1917. J. A. M. A., 70:520-535, Feb. 23; 607-621, March 2, 1918.

[19] Blalock, A., Beard, J. W. and Johnson, G. S.: Experimental Shock; Study of its Production and Treatment. J. A. M. A., 97:1794-1797, Dec. 12, 1931.

[20] Meek, W. J.: A Present Day Conception of Shock. The Arnold B. Luckhardt Lecture, University of Chicago, 1936.

[21] Hartmann, A. F. and Perley, A. M.: Further Observations on Use of Acacia in Treatment of Nephrotic Edema. Proc. Central Soc. Clin. Research, Nov. 2, 1935.

[22] Heuer, G. J. and Andrus, W. DeW.: Effect of Adrenal Cortical Extract in Controlling Shock following Injection of Aqueous Extracts of Closed Intestinal Loops. Ann. Surg., 100:734-749, Oct., 1934.

The prophylaxis of pulmonary edema would first involve the exclusion of all surgery of election in patients who have previously experienced such episodes. Since patients with arterial hypertension and myocardial degeneration are especially prone to this distressing complication, their past medical histories should be particularly scrutinized with this thought in mind even before surgery of necessity. The unusual precautions discussed in the consideration of the poor cardiac risk subjects peculiarly apply to this situation. Should pulmonary edema, or so-called cardiac asthma, develop in spite of these protections, venesection should be resorted to at once in amounts of not less than 500 cc. The advantage of this procedure is enhanced by its more rapid execution (not exceeding fifteen minutes). Constriction of the four extremities to limit the return of blood to the heart may have a place in this relation. Morphine, short of respiratory depression, may serve a very useful purpose in quieting mental and respiratory overactivity. Oxygen may be used to combat anoxemia. Atropine has a wide vogue in the management of pulmonary edema, but it must be used with utmost caution to avoid the release of vagal tone with its resultant charge upon the circulation. Vasodilators have a definite place in the pulmonary edema of hypertension and circulatory support must be rendered if the indications arise.

The circulatory changes incident to surgical procedures and the convalescence therefrom peculiarly favor the occurrence of thrombosis, which in turn depends upon changes in the blood, blood flow or vessel wall. Aside from the influence of the anesthetic agent upon the circulation, the traumata of surgery, dehydration, enforced quiet and infection all play their part in predisposition to thrombosis. Such vascular occlusion may occur in the arteries or veins of the extremities or elsewhere in the body. If a thrombosis of the femoral vein be taken as a type, the patient complains first of pain in the course of the vessel. Tenderness, linear redness and a cord-like resistance mark the vein. Edema and discoloration of the leg may result. Fever and leukocytosis are constitutional evidence of venous thrombosis especially in the presence of phlebitis.

The prophylaxis of thrombophlebitis involves the observance of all details of surgical forbearance in tissue trauma. Avoidance of too protracted rest is a further watchword against this complication. Passive and active exercise are particularly important in this direction. The efficacy of thyroxin or thyroidea sicca in preventing postoperative thrombosis has been urged in certain quarters.[23] If this complication should develop, elevation and absolute rest of the leg are imperative. Strict orders must be issued against massage of the involved part. Hot moist dressings, usually of magnesium sulphate solution, are applied. Recently the use of leeches has been revived.[24]

Thrombosis occurring in any organ may give rise to distinctive symptoms and clinical courses. It is obviously beyond the scope of the present dissertation to outline these wide ramifications, nor can the diverse picture of embolism be sketched. However, it would seem advisable to discuss pulmonary embolism as a dangerous and not infrequent postoperative complication. Although it may occur as the result of the lodgment of particles of valvular vegetations, neoplastic tissue, air or fat in a pulmonary or bronchial artery, by all odds the most common source of the embolus is a detached particle of a remote thrombus borne to the lung through the pulmonary artery. Hence distant venous thrombosis is the most common antecedent of pulmonary embolism. The pathologic result of this accident is infarction, if the pressure in the systemic circuit falls coincidentally with the occlusion of the pulmonary artery. Otherwise small anatomic anastomoses become functional under the sustained arterial pressure.

Undoubtedly a considerable percentage of patients suffering pulmonary embolism succumb to the accident after a few minutes of collapse, gasping respiration and unconsciousness. In such cases the diagnosis may be inferred rather than fixed from any physical evidence. The typical picture of pulmonary infarction from embolism is frequently initiated by deep-seated pain in the chest. Shock is an early accompaniment with a falling blood pressure and rising pulse. The skin, now a dusky blue, becomes cold and clammy. The cough may or may not be productive of bloody sputum. If hemoptysis occurs, it is early a bright red fluid blood and later dark clotted blood. Slight fever may appear but a septic course bespeaks a septic embolism. Jaundice, latent or obvious, is a constant sequel of pulmonary infarction of whatever origin. To physical examination restriction of the respiratory excursion, decreased vibratory phenomena, impairment of resonance to dullness, suppressed breath sounds and fine crackling rales may be anticipated, if the infarct be accessible and of sufficient size. A friction rub may later appear and then be succeeded by the physical evidences of an effusion. A moderate polymorphonuclear leukocytosis is the rule. The roentgenogram is occasionally diagnostic.

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[23] Walters, W.: Method of Reducing Incidence of Fatal Postoperative Pulmonary Embolism; Results of its Use in 4,500 Surgical Cases. Surg., Gynec., & Obst., 50: 154-159, Jan. (No. 1A), 1930.

[24] Mahorner, H. R. and Ochsner, A.: Use of Leeches in Treatment of Phlebitis and Prevention of Pulmonary Embolism. Ann. Surg., 98:408-421, Sept., 1933.

By way of therapy the prophylaxis of pulmonary embolism implies the utmost care in the manipulation of common areas of thrombosis, as peripheral varicose veins, the pelvic and hemorrhoidal veins. Fat and air embolism are unusual but the implications in their prevention are equally clear. As to the treatment of pulmonary occlusion of this order, embolectomy, although very spectacular in the reported successes, must have a limited application. Morphine and oxygen are the most useful drugs in this condition and circulatory support should be reserved until conditions require.

Arguments to the contrary notwithstanding, surgery evokes unusual stresses of a psychic, if not a physical, order. In the common opinion the physical demands of a major surgical operation do not greatly exceed the exactions of daily life. Hence, surgery of election need not be withheld from the cardiac patient who experiences no distress upon ordinary walking or mounting stairs. On the other hand, surgery of necessity would be illogical in a cardiac patient whose expectancy of life from this condition is deemed less than that from the surgical complication. A clearer understanding of the physiology and biochemistry of muscular activity has led to the pre- and postoperative use of glucose, oxygen and insulin for the protection of the myocardium. Surgical trauma is steadily being minimized. Anesthetic agents offer a certain threat to the conduction mechanism or the irritability of the myocardium that is not yet fully understood. At the present time adequate preparation and the avoidance of anoxemia offer the best guards against myocardial injury from this source.

Postoperative tachycardia is too frequently treated as a symptom and its causes overlooked. Digitalis is usually contraindicated, whereas sedation, the control of anoxemia, the restoration of fluid or blood balance and similar fundamental readjustments may stabilize the circulation and slow the pulse. Surgical shock presents a problem in maintaining the effective circulatory volume under the unusual condition of surgery. Prophylaxis against surgical shock will be effective in a majority of instances. Failing of this ideal, measures must be directed toward the restoration of the effective circulatory volume. The several vascular accidents of thrombosis and embolism lead to many clinical pictures. Here, as in other phases of the circulatory problems of surgery, prophylaxis offers a much sounder approach to the solution than does treatment of the actual complications.

SURGICAL TREATMENT OF MULTIPLE SCLEROSIS

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There is no other disease in which the prognosis is more discouraging than in multiple sclerosis. The fact that so many different types of therapy have been recommended indicates that none of them has been of much value. Most of the treatments, and especially those which have given favorable results, are the ones which produce vasodilatation and thereby increase the blood supply of the brain and spinal cord.

All forms of treatment heretofore have resulted in only temporary improvement. Remissions are so common and so apt to occur at any time that it is extremely difficult to evaluate the results of any treatment. Often encouraging results are simply remissions.

At this time we are presenting the results in a series of eighteen cases of multiple sclerosis treated by sympathectomy. The rationale of sympathectomy in multiple sclerosis is based on the fact that sympathetic denervation is known to cause vasodilatation of the blood vessels supplied by the denervated segments. Cervicodorsal sympathectomy, therefore, produces a permanent increase in the blood supply of the brain and upper spinal cord.

PATHOLOGY

Putnam[1] reports experimental work on the pathogenesis of multiple sclerosis, and points out the possibility of a vascular lesion being the cause of the sclerotic placques. He shows that vascular abnormalities with disturbance of circulation and decreased vascularization around the placques may well be the etiologic factor. He cites Pfeifer's finding of a zone of vascular deficiency surrounding many of the smaller vessels of the brain.

The pathology of the disease is well known. Placques of sclerosis are found throughout the central nervous system, being most marked in the brain stem and in the spinal cord. In view of these findings it is perhaps difficult to understand how sympathectomy could cause improvement. It must be borne in mind that the pathologic studies have been carried out on autopsy specimens of advanced cases. In these cases, no doubt, the pathology is such that sympathectomy could not possibly be of benefit. If benefit can be obtained, it must be early in the course of the disease before these placques have become so large and so numerous.

Remissions in the course of the disease are typical, and marked amelioration of symptoms may occur for varying lengths of time, from a few days to months or even years. There is no explanation for this occurrence except that areas of the central nervous system have temporarily regained their lost function. It is impossible to conceive of sclerotic placques regaining any function. One must, therefore, assume that these areas which function only during remissions are ones in which the nerve cells are still viable and may resume their activity under favorable conditions.

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[1] Putnam, T. J.: Pathogenesis of Multiple Sclerosis; Possible Vascular Factor. New England J. Med., 209:786-790, Oct. 19, 1933.

An explanation of the remission is that it occurs as a result of improved vascularity and nutrition of these viable but nonfunctioning areas. The entire rationale of treatment by sympathectomy is based upon this premise.

In 1933 Royle[2] reported four cases of multiple sclerosis treated by sympathectomy. His report stimulated Wetherell to apply the same method of treatment in one case which was reported in 1934.[3] In 1936[4] he reported eight cases in which cervicodorsal sympathectomy gave very promising results. We have eighteen cases to report, and while our results are not nearly so good as those reported by Royle and Wetherell, they are, nevertheless, somewhat promising in certain instances, and in some cases have been very satisfactory.

INCIDENCE

Multiple sclerosis is a comparatively uncommon disease about equally divided as to sex. In our series ten were females and eight were males. It usually makes its appearance in the fourth decade of life. Our youngest patient was twenty and our oldest fifty-two.

COURSE AND SYMPTOMATOLOGY

The diagnosis of multiple sclerosis can frequently be made from the history. The condition is chronic and slowly progressive and is characterized by periods of remissions in the severity of symptoms. The cases fall into three types: the acute type in which from the onset of symptoms to disability only a few months may elapse; the subacute type in which several years elapse before disability intervenes; the chronic type, the most common, in which many years elapse from onset to disability. There is no disease with a more protean symptomatology. The major findings, many or all of which are present in these cases are, first, the well-known quartet of nystagmus, intention tremor, absent abdominal reflexes and scanning speech. The other more common findings are pallor of the optic discs, positive Babinskis, ankle clonus, increased reflexes, spasticity and ataxia, and frequently positive Romberg, disturbance of the vibratory sense and vertigo.

The disease usually starts insidiously and the diagnosis is rarely made early. The lower extremities are usually involved first. The patient will notice a slight stiffness of the extremities and some difficulty in locomotion which may disappear in a short time only to recur in an aggravated form. This stiffness and lack of control gradually increase and after a time the arms may become involved, although symptoms may be limited to the lower extremities for years. Occasionally complaints may be confined to the upper extremities. Instability and vertigo are common complaints. Bladder disturbances usually make their appearance at some stage of the disease. Paresthesias are not uncommon, and those patients who use the small muscles of the hands a great deal will complain of clumsiness and stiffness of these members. Visual disturbances and speech difficulty are usually late manifestations. Pain is rare, but it does occur at times in association with spasticity.

In a patient between twenty and forty complaining of stiffness of the extremities, gradually increasing instability, who tires rapidly, and states that symptoms are intermittent but are gradually becoming worse, one should suspect multiple sclerosis. If, on examination, nystagmus, absent abdominal reflexes, intention tremor, increased reflexes, spasticity, bilateral Babinski and ankle clonus are found, the diagnosis is almost certain.

There is only one condition which is difficult to differentiate, namely, combined sclerosis of the pernicious anemia type. This can be ruled out by gastric analysis, as these patients invariably have absence of free hydrochloric acid even though the blood picture is normal. Syphilis, of course, may simulate the disease, but this should not be difficult to rule out. Cord tumors and rare neurologic lesions must also be considered in the differential diagnosis.

SELECTION OF CASES FOR OPERATION

Surgical treatment should be recommended only in carefully selected cases. In order to have a reasonable percentage of success, we must find some criteria of selection. It would seem obvious that patients who have lost the ability to walk or to feed themselves could not be improved to any great extent. Strangely enough, however, two of our good results have occurred in just that type of patient,

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[2] Royle, N. D.: Surgical Treatment of Disseminated Sclerosis. M. J. Australia, 1:586-588, May 13, 1933.

[3] Wetherell, F. S.: Multiple Sclerosis; Cervicodorsal Sympathectomy as a Relief Measure: Report of a Case. J. A. M. A., 102:1754-1756, May 26, 1934.

[4] Wetherell, F. S.: Cervicodorsal Sympathectomy in Multiple Sclerosis: its Rationale and Report of 8 Cases. Arch. Neurol. & Psychiat., 34:99-110, July, 1935.

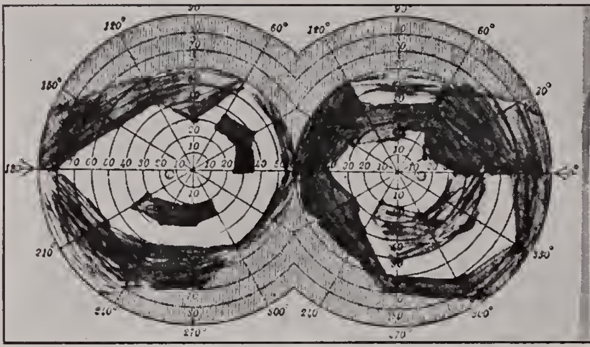

Fig. 1. Reproduction of fields taken May 1, 1936, showing a marked contraction of both visual fields.

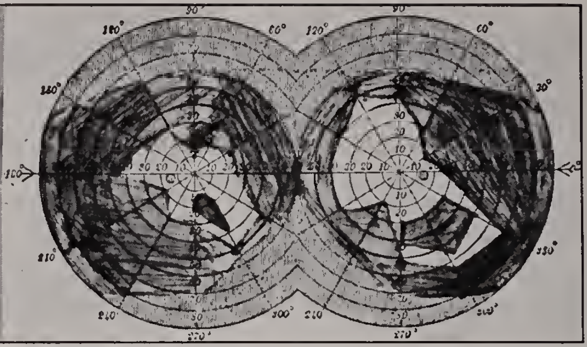

Fig. 2. Reproduction of fields taken June 2, showing even greater contraction. At this time patient had only central vision.

one male and one female. Of our ten females only two have had good results, and in two others the results have been fair. In four of our first six males the results have been good, the two other cases being too recent to evaluate.

If there is merit in this type of treatment, the earlier in the course of the disease it is carried out, the more favorable should be the result. It is unfortunate that in this series of cases only three have been early ones with minimal disability. Even though these patients had not reached the point of major disability, they had all been forced to give up their employment. All three have resumed their occupations markedly improved. Two of these three were males and two other male patients have made definite improvement. There were two who were unable to perform any purposeful movements with their extremities. One of them is now able to perform purposeful movements which he could not do before, while the other one, after showing a marked improvement immediately following the operation, has again become progressively worse. Our first patient, a young man almost at the point of inability to walk, has estimated his improvement at approximately fifty per cent. It is evident from these results that in men even far advanced cases may exhibit some improvement. We do not feel, however, that the operation is warranted in patients who are no longer able to walk.

The picture in women is entirely different. Even in comparatively early cases, in which we have expected to get much improvement, the results have been disappointing. However, two have served to lighten our disappointment. In one of these we felt that the prospect of improvement was small, due to a rapid progression of the disease. Its entire course from onset to inability to walk covered a period of only eight months, and there were no remissions. We expected little and accomplished much. Her improvement has been very marked in the upper extremities, and we are now considering lumbar sympathectomy, hoping that the lower extremities may be improved.

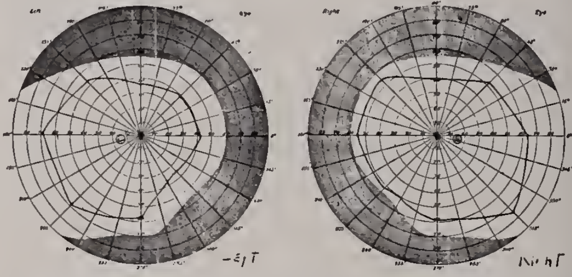

Fig. 3. Reproduction of fields taken July 31, approximately one month after the first operation and two weeks after the second operation. This shows almost normal visual fields.

The other patient deserves special mention as the entire course and result have been most extraordinary. She was first seen in the spring of 1933.

A married woman 33 years of age, who had been diagnosed by several competent men as having multiple sclerosis, came to me with the complaint of spasticity and pain in the right leg, so severe that it was necessary for her to use a cane. She had been unable to walk up stairs alone for over a year. Positive neurologic findings were absent abdominal reflexes, bilateral Babinski, increased reflexes, spasticity of the right leg.

Because of the pain and the fact that the condition was unilateral, diagnostic lumbar sympathetic injection was done May, 1933. Following this injection her pain was entirely relieved and for several hours afterward she was able to walk up stairs alone. On the basis of this result lumbar sympathectomy was performed June 1. She made a most remarkable recovery and was entirely free from all symptoms for a period of three years. She was able to dance and do everything that any other normal individual could do.

In the spring of 1936 she began to have a great deal of visual disturbance, difficulty in balance, and staggering, and some difficulty in using her hands. She consulted an ophthalmologist who found a marked contraction of her visual fields. One month later her fields were much worse, showing only a central type of vision. She was then referred to a neurologist who diagnosed multiple sclerosis affecting the brain stem. There were still no complaints referable to the lower extremities. She then consulted me and I advised cervicodorsal sympathectomy. At the time of examination there were no additional findings except a positive Romberg, past pointing and contracted visual fields. Bilateral cervicodorsal sympathetic gangliectomy was performed in July. Visual fields taken one week later showed practically normal vision (figs. 1, 2, 3).

Two other female patients have shown some improvement. The remaining six have received no benefit.

It is apparent that we are unable to determine any accurate method of selecting cases for operation. I feel that the operation is worth a trial in any male patient who is still able to walk and can perform purposeful movements. We are unable to estimate any definite criteria of selection in female patients. It seems that one must estimate the psychic background of the patient, the type of individual, the surroundings and social position. It is apparent that these factors play an important part in the result of any form of treatment in women. We have not found this true in men. It seems inconceivable that the disease should be different in men than in women, and the explanation of the difference in results must be in the characteristics of the sexes. In women we have been unable to come to any rational conclusions as to why one case should show a good result and another a poor one. In almost every instance our prognosis has been wrong. Those in whom we expected good results were a disappointment, and the reverse has also been true.

Royle in a personal communication states that a low diastolic blood pressure is a contraindication for sympathectomy, and that good results will not be obtained unless the oscillations of the knee jerk are few and the relaxation time prolonged. He states that when the oscillations are many it means that the sclerosis has gone too far for any recovery to occur, since the subject is almost a spinal animal.

SURGICAL PROCEDURE

Royle and Wetherell have done cervicodorsal sympathectomy in their cases. In our first case, since the disease process was almost entirely confined to the right lower extremity and was improved by a diagnostic injection of the lumbar sympathetics, sympathectomy was done with complete relief of symptoms for over three years. In another case of unilateral involvement of the lower extremity lumbar sympathectomy gave but little improvement. It would seem that cervicodorsal sympathectomy is the operation of choice. This could perhaps be followed by lumbar sympathectomy in certain cases, if the amount of improvement in the upper extremities warranted it.

As to the type of operation, it is immaterial whether it be done through an anterior or posterior approach so long as sufficiently wide resection of the sympathetic ganglia is accomplished. I feel that at least the inferior cervical and the first two thoracic ganglia should be removed and this can be accomplished best by the anterior approach. (It is apropos at this point to give the credit for the anterior approach to Royle.[5] It was erroneously attributed to Gask in a previous article.[6]) It is my custom to remove not only the inferior cervical and first two thoracic ganglia, but also the intermediate ganglion above, and the third and sometimes the fourth thoracic ganglia below. An extensive resection such as this cannot be accomplished by any posterior approach yet described. The technic of this operation has been adequately described elsewhere.[6]

SUMMARY

The rationale of the treatment of multiple sclerosis by cervicodorsal sympathectomy is presented. Recent studies on the pathogenesis of the disease indicate that the sclerotic placques are in some way related to blood vessels and it is, therefore, possible that the disease is due to inadequate blood supply to the central nervous system. By surgical resection of the sympathetic nerves it is felt that the blood supply to the brain and spinal cord is improved and that this may result in at least checking the progress or even improving the symptoms.

A series of eighteen cases, ten female and eight male, are reported, in which sympathectomy has been performed. The results in men have been good in five of the first six cases done, and in three of these five the results are considered excellent. The other two cases are too recent to evaluate.

The results in women have been excellent in two cases and in two others sufficiently good to warrant the procedure. In the remaining six cases, apparently no benefit whatsoever was obtained. Worthwhile results, therefore, have been obtained in about 75 per cent of the men, and 40 per cent of the women.

CONCLUSIONS

The results of sympathectomy in multiple sclerosis are sufficiently worthwhile to justify its acceptance as a method of treatment. In earlier cases, especially in males, we may look for considerable improvement in most cases. In females, while the results are not so good as in males, occasionally they are excellent. These facts warrant the opinion that this method of treatment should be considered before allowing these patients to go to complete disability.

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5. Royle, N. D.: Observations on Alteration of Circulation of Brain by Surgical Means in Diseases of Central Nervous System. Brit. M. J., 1:1063-1068, June 11, 1932.

6. Flothow, P. G.: Adequate Anterior Approach for Removal of Cervicodorsal Sympathetic Ganglia. West. J. Surg., 43:589-592, Oct., 1935.

INSULIN AND PROTAMINE IN THE TREATMENT OF DIABETES MELLITUS

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In January, 1936, the *Journal of the American Medical Association* presented the first reports in American medical literature on the use of insulin combined with protamine in the treatment of diabetes mellitus. These reports came from the Steno Memorial Hospital in Copenhagen, where Hagedorn[1] and his associates had originated the preparation and given it clinical trial for several years, and the George F. Baker Clinic in Boston, where Joslin[2] and his associates had observed its effects on diabetes for several months. Since then many articles relating clinical experience with insulin and protamine, contributed by Joslin, Wilder,[3] Smith,[4] Best,[5] Campbell, Rabinowitch[6,7] and others, have appeared in the medical literature.

Shortly after the publication of the first reports, when Hagedorn granted the American rights to the Insulin Committee of the University of Toronto, protamine insulin became available to diabetic clinics for clinical study. Under the Committee's authorization material has been supplied by the Eli Lilly Company in the same generous and philanthropic spirit shown by them in 1922. The Toronto Committee has also authorized E. R. Squibb & Company to participate in the studies, and protamine insulin from their laboratories as well has been used in the clinical trials. The time when the new preparation will be available commercially is probably near at hand, and it would be well for those who employ insulin in medical practice to familiarize themselves with the differences between the action of the old and of the new insulin.

DEFICIENCIES OF OLD INSULIN

When insulin was given to the world by its discoverers in 1922, a new day dawned for diabetics. It is needless to mention the saving of lives, the increased span of years, the diminished suffering and the living children that this great discovery has made possible. Wonderful as it has been, there have been many deficiencies in the therapeutic effect of the old insulin. To accomplish satisfactory control of the diabetes, multiple injections each day have often been necessary; and frequently injections during the sleeping hours have been required as well, in order to begin the day with a blood sugar concentration low enough to approximate normal. Often, and especially with children, efforts to control the tendency to high blood sugar levels and glycosuria by larger and more frequent doses of insulin have precipitated severe and unpleasant hypoglycemic reactions. Many a mother of a diabetic child has left her bed each night to watch for or treat a reaction. Large doses of insulin have caused reactions before lunch, hurried lunches, periods of mental deficiency, social embarrassments, and possibly in some instances even irresponsible acts, with incidental danger to the patient and others. As a result, in many cases it has been necessary to be satisfied with less accurate diabetic control than was desirable. For this reason, fourteen years of the use of insulin have not shown the expected improvement in the late complications of the disease.

These undesirable effects, which seemed due largely to rapid absorption, led to many attempts to inject insulin in combination with some substance such as fats, oils, vasoconstricting drugs or metallic salts. The Danish preparation from the Hagedorn group, however, is the first combination of insulin with another substance which has produced successful results.

MODE OF ACTION OF PROTAMINE INSULIN

A year of experience with protamine insulin has made it convincingly clear that again a new day is dawning for the diabetic. Whereas the old insulin acted quickly and expended its effect in a probable maximum of six hours, the new insulin acts slowly and produces insulin effect for as much as twenty-four hours, perhaps longer, following the injection. Recently metals such as zinc and calcium have been added to the protamine, and the prolongation of the effect seems to be definitely enhanced. Zinc appears to prolong the insulin effect better than calcium, although this is not definitely decided. Some question has been raised as to the safety of administering the minute quantities of the zinc radical over long periods of time. Recently Rabinowitch has offered evidence that the zinc is rapidly eliminated, mostly through the bowel, without any apparent untoward effects.

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[2] Root, H. F., White, P., Marble, A. and Stotz, E. H.: Clinical Experience with Protamine Insulinate. J. A. M. A., 106:180-183, Jan. 18, 1936.

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[7] Rabinowitch, I. M., Foster, J. S., Fowler, A. F. and Corcoran, A. C.: Clinical Experiences with Protamine-Zinc-Insulin and other Mixtures of Zinc and Insulin in Diabetes Mellitus. Canad. M. A. J., 35:239-252, Sept., 1936.

At present the protamine metal buffer is dispensed in a separate container which is added to a vial of the regular insulin in definite proportions. The resulting product is a fine, flocculent, milky mixture which requires agitation before the withdrawal of each dose. With the earlier preparations it seemed necessary to keep the mixture refrigerated. Evidence is accumulating to show that the material more recently produced is definitely stable and needs less attention in this respect. It is advisable to mix the protamine buffer with the insulin at least forty-eight hours before its administration is begun. This makes complete combination of insulin and buffer more probable, and possibly obviates undue fluctuation of blood sugar concentration through the action of uncombined insulin. The mixture is injected hypodermically in the same manner as the old insulin, and does not produce any more untoward local effect on tissue.

Because of the slow release of insulin from the protamine insulin precipitate, a more evenly distributed insulin action and a more constant effect on blood sugar concentration is obtained, simulating more closely than ever before the physiologic action of the normal Islands of Langerhans. Best has shown that the duration of the effect of protamine insulin is established by the size of the dose; in other words, the larger the dose of protamine insulin in units the longer will the blood sugar remain lowered after the injection.

EXPERIMENTAL STUDIES

In order to obtain adequate data which justified a satisfactory evaluation it was desirable to use the new preparation over a sufficiently long period of time. Since at the same time the supplies, although generous, have been limited, relatively few cases have been selected for the clinical trial. Throughout the country several thousand patients have been studied.

Our experience began in March of this year, and the course of the diabetes in sixteen instances has been charted. This report is based upon our observations over the greater part of this period, during which plain protamine insulin was employed. A later report will relate our experience more fully with the zinc and calcium preparations which we are now using exclusively.

Various methods of dosage have been tried, such as a combination of both old and new insulin, new insulin twice a day, and more recently, new insulin once a day. The Danish group suggested old insulin in the daytime and new insulin at night to control nocturnal and early morning glycosuria. Our first cases were observed on this type of regime with the employment of plain protamine. Later regimes have proven more satisfactory.

Smith has administered new insulin morning and evening, and in cases not controlled by this, reinforced it with injections of old insulin. Joslin and White in Boston and Wilder in Rochester have used single large doses of protamine insulin alone once a day before breakfast. Our latest patients have been started on this regime and our earlier patients have been changed to it, so that at present all of the sixteen patients are receiving a single dose of protamine insulin daily before breakfast. The diabetic control thus obtained has been most gratifying.

TECHNIC OF ADMINISTRATION

In our opinion it is desirable to secure as satisfactory control of the diabetes as possible before beginning the use of protamine. At least the urine should be rendered practically free of sugar through an increased number of doses of old insulin with an increase in the total number of units if necessary, although this is probably not essential. This method gives the physician a means of establishing the dose of protamine insulin to be administered. The number of units of protamine insulin given in a single dose is equal to the number of units of old insulin found necessary each twenty-four hours to desugarize the urine. In addition, an injection of old insulin equal to sixty to one hundred per cent of the usual morning dose is given at the same time. This is continued over a period sufficient for what might be termed "insulin saturation" with protamine insulin. The change from regular insulin to protamine insulin is followed by a period of disturbed control, usually with glycosuria, which persists until the effect of protamine insulin becomes fully evident. This period may vary considerably in duration. The additional dose of regular insulin, which is gradually reduced to none, serves to tide over the period of change. Abrupt transference from old to new insulin may result in unnecessary and possibly dangerous disturbances such as severe glycosuria or ketosis.

Diabetics who have not previously used insulin may be started on protamine insulin. Unless the degree of diabetes is mild, the additional use of old or regular insulin mentioned above is desirable during the first few days in order to secure prompt control. There may be no advantage in protamine insulin for the mild diabetic for reasons that are obvious.

At the time of beginning the use of protamine insulin, changes in the dosage should not be made oftener than every few days, since more time is necessary for the sugar mechanism to adjust itself to the effect of the new insulin than is commonly required with old insulin. During periods of complicating illness, particularly when infection is present, it seems advisable to continue the usual dose of protamine insulin or possibly add an evening dose, and at the same time administer frequent small doses of old insulin sufficient to complete satisfactory control of glycosuria.

TYPE OF DIET EMPLOYED

In this clinic for the past seven years we have employed a carbohydrate fat ratio, ranging from 1½:1 to 2:1. The caloric value of the diet has varied from the basal requirements plus twenty to fifty per cent, depending upon activity and age. The protein allowance has been liberal, varying from one to one and one-half grams per kilo for adults and greater amounts for growing children. Using the regular insulin, carbohydrate, protein and fat have been distributed equally over three meals.

With protamine insulin we have followed the same distribution, except that approximately fifteen grams of carbohydrate have been taken from breakfast and given as a special feeding at three-thirty in the afternoon. This may not always be necessary, but is required in some instances, as indicated by a relatively low blood sugar concentration before the evening meal, when the effect of protamine insulin seems to be at its maximum. Carbohydrate in the form of starch is usually given for the afternoon feeding, since the entrance of glucose into the blood stream takes place more slowly, if carbohydrate as starch rather than as fruit is used.

With school children who take most of their exercise before school in the morning or after school in the evening, with very little activity during the day, equal division of the diet allowance into three meals may result in more evenly balanced blood sugar concentration. In certain cases special distribution of the diet into meals may be necessary, depending upon what time of day exercise is possible. In general, on a protamine insulin regime perhaps somewhat greater liberty may be possible with the diet, but fairly accurate approximation of the total caloric value and distribution of the meals will continue to be absolutely necessary.

HYPOGLYCEMIC REACTIONS

Diabetic patients, receiving protamine insulin in contrast to old or regular insulin, experience a sense of well-being which is more uniform throughout the day, and a greater mental and frequently greater physical efficiency. Reactions are practically eliminated, although they may occur. When reactions are present, they will have a greater tendency to recur after being relieved, although extreme glycosuria is less apt to be produced.

CASE REPORTS

The two following case reports exemplify the average experience of the sixteen patients treated by us for diabetes, employing insulin and protamine. Case 1 represents the transfer from old insulin to protamine insulin of a patient with diabetes of nine years duration. Case 2 is representative of the use of protamine insulin in a patient immediately following the establishment of a diagnosis of diabetes.

Case 1. L. S., No. A32295, a thirty-four year old engineer, was first seen by us in August, 1929. Symptoms of diabetes had begun in 1927, and at the time he came under our supervision, he had been following a regime allowing C 175, P 90, F 175, with twenty-five units of insulin daily. Physical examination and routine laboratory studies were not remarkable. During a seven-year period of observation he was allowed from 160 to 200 grams of carbohydrate daily with sufficient protein and fat to maintain nutrition and weight. Insulin was given in varying dosage before breakfast and before supper.

On this 2-dose schedule the blood sugar level fluctuated markedly, with frequent periods of hyperglycemia and frequent hypoglycemic reactions. The reactions before lunch interfered sufficiently with his work to necessitate avoidance of responsible business activities from 11:00 to 12:00 noon. On this account, he was considered an excellent candidate for the administration of protamine insulin.

Being an unusually intelligent diabetic, he was handled as an ambulatory patient. Prior to the conversion to insulin and protamine, he was on a diet of C 190, P 75, F 125, and a 20-0-20-0 insulin schedule; his fasting blood sugar being 250 mgm. and at 4:15 p.m. 248 mgm. He was started on thirty units of plain protamine insulin and ten units of regular insulin given as separate injections thirty minutes before breakfast. No further insulin was given during the remainder of the twenty-four hours.

Chart 1 depicts the period of conversion and the subsequent course. Regular insulin was discontinued on the fifth day. To obviate late afternoon reactions, it was necessary to administer an afternoon feeding at 3:30 p.m. This was given as carbohydrate in the form of starch.

Mild hypoglycemic reactions were frequently noted at noon on the day a new vial was started, and glycosuria on the day the last of the vial was used. This phenomenon is at present assumed to be due to the incomplete combination of the insulin and the protamine buffer. For this reason we have advised the admixture of insulin with protamine at least forty-eight hours before use.

	Diet			*Insulin*			*Blood*	*4-Period Test*	
Date	*C*	*P*	*F*	*R*	*R*	*Time*	*Sugar*	*B D S N*	*Remarks*
7/1/36	190	75	125	20-0-20-0		4:15 pm	248		Old regime.
7/12/36	190	75	125	30 P*	10 R†			0 0 0 0	Mild reaction 11 am; Mild reaction 6 pm.
						7:30 am	200		
						11:30 am	102		
7/13/36	190	75	125	30 P	8 R	4:30 pm	47	0 0 0 0	Mild reaction 4:30 pm.
						7:30 am	226		
7/14/36	190	75	125	30 P	4 R	9:30 pm	98	0 2 1 0	Mild reaction 5:30 pm.
						11:30 am	126		
7/15/36	190	75	125	30 P	4 R	4:30 pm	35	0 0 0 0	Mild reaction 4:30 pm.
7/16/36	190	75	125	30 P				1 2 0 0	Afternoon nourishment; Mild reaction 5:30 pm.
7/21/36	190	75	125	30 P		7:30 am	118	0 0 0 0	No reaction; 3:30, nourishment.
7/24/36	190	75	125	30 P		4:30 pm	153	0 0 0 0	3:30, nourishment.
7/29/36	190	75	125	30 P		11:30 am	122	0 0 0 0	3:30, nourishment.
8/1/36	190	75	125	30 P		7:30 am	138	0 0 0 0	3:30, nourishment.
8/12/36	190	75	125	30 P		7:30 am	163	0 0 0 0	3:30, nourishment.

* Protamine insulin.

† Regular insulin.

Chart 1.

	Diet			*Insulin*			*Blood*	*4-Period Test*	
Date	*C*	*P*	*F*	*R*	*R*	*Time*	*Sugar*	*B D S N*	*Remarks*
8/13/36	?	?	?	0		2:30 pm	330	4	Before admission.
8/17/36	150	80	100	30 P	8 R			1 0 0	Day of admission.
						7:30 am	147		
8/18/36	150	80	100	30 P	8 R	4:30 pm	135	0 1 0 0	
8/19/36	175	80	100	30 P				0 2 1 1	
8/20/36	175	80	100	40 P		7:30 am	214	0 2 1 0	
8/21/36	175	80	100	40 P				0 0 1 1	
						7:00 am	192		
8/22/36	175	80	100	40 P		4:30 pm	150	0 1 1	Discharged.
8/28/36	175	80	100	40 P		12:30 pm	142		Tests blue or green; Noon reaction; late lunch.
9/10/36	175	80	85	32 P		4:00 pm	100		Reaction first 2 days on new bottle; tests blue.
9/19/36	175	80	85	32 P		7:30 am	127		

Chart 2.

This patient is receiving the protamine zinc compound at the present time.

Case 2. M. T., No. A59823, a school teacher forty-five years of age, was first seen by us on August 12, 1936. Symptoms of diabetes were probably in evidence as early as August, 1935, but glycosuria was first detected during an examination by her local physician the beginning of August, 1936. At the time of our examination she had been following a nonmeasured, restricted-carbohydrate diet. Physical examination and routine laboratory studies were not remarkable except for nodular enlargement of the thyroid. without evidence of activity, and elevation of the blood pressure to 170/100. Blood sugar concentration recorded two hours after a lunch restricted in carbohydrate was 330 milligrams.

She was hospitalized on August 17, and placed immediately on protamine insulin, receiving thirty units of protamine insulin and eight units of regular insulin as separate injections thirty minutes before breakfast. Fifteen grams of carbohydrate were deducted from breakfast and given as nourishment at 3:30 p.m., to care for the usual hypoglycemia encountered at about 4:30 in the afternoon.

Chart 2 illustrates her progress during the period of hospitalization and the subsequent follow-up study. The regular insulin was discontinued on the third day of treatment and satisfactory control has been maintained. This patient likewise experienced mild reactions at noon on the first two days when a new vial was used. She has also been instructed to mix the insulin and protamine at least forty-eight hours before use, to make the combination of free insulin and protamine buffer more complete.

SUMMARY

Our observations of the treatment of sixteen patients with protamine insulin, covering a period of six months, are presented. Ten patients with onset of diabetes in childhood, who have had the disease from one and one-half to fourteen years, were selected for the study. The other six patients are adults. In all but two instances the cases were hospitalized during the preliminary period of observation.

Protamine insulin affords the moderately severe and severe diabetic better control of his disease than has been possible previously. Undue fluctuation of blood sugar concentration encountered in patients using regular insulin is practically eliminated. It is possible definitely to decrease the frequency of insulin injections. It seems to us that the reaction of each patient to protamine insulin will be somewhat individualistic.

Termination of One Thousand Attacks of Migraine With Ergotamine Tartrate. Mary E. O'Sullivan, New York (*Journal A. M. A.*, Oct. 10, 1936), states that ergotamine tartrate administered to ninety-seven patients checked or aborted 1,042 attacks in eighty-nine of these persons. It was calculated that the individuals in this series were relieved from 39,000 hours of suffering. The earlier in the attack the medication is given, the better are the results. When used subcutaneously, the alkaloid has never failed to check again an attack in a person previously relieved if the drug was given in adequate dosage. Untoward effects of the drug may be relieved by simultaneous injection of 1/100 grain of atropine or calcium gluconate intravenously. She does not consider the drug a cure for migraine.

INTRAVENOUS EVIPAL ANESTHESIA*

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Evipal was first described by Weese[1, 2] in 1932. It is probably safe to say that no anesthetic agent has ever been so quickly accepted and widely used in so brief a time since the advent of modern anesthesia. The inception and advance of modern surgery is intimately linked with the discovery and development of suitable anesthetics. New operative maneuvers demand different anesthetics and improved anesthetics open new fields for surgery. The versatile anesthetist does not expect to limit himself to the use of one anesthetic agent any more than an adept surgeon tries to do all abdominal surgery through one type of incision. Each must have a variety of procedures at his command. We wish to comment on evipal, one of the newest of anesthetics, and cite our eminently satisfactory experience with it.

In general, an ideal anesthetic should fulfill certain requirements. It should (1) be safe, (2) act quickly, (3) terminate quickly and pleasantly, (4) produce complete amnesia, (5) allow adequate relaxation, (6) be easily administered, (7) have no dangerous sequelae.

For the procedures for which it is adapted, we feel that evipal meets these conditions admirably. We believe that, as greater familiarity is had with this drug, its use will be extended to the larger surgical procedures.

HISTORICAL

Von Mering and Fischer synthesized barbital in 1903 and since that time scarcely more than one hundred of the twelve hundred theoretically possible derivatives have been compounded. Most of these known derivatives are sedative in effect, though some are viciously toxic and a few excite. In his original description of sodium evipal, Weese credited Taub and Kropp with its synthesis. Physically, it is a white, crystalline, tasteless, odorless powder which is readily soluble in water but unstable in solution. Weese soon established the pharmacologic actions of evipal and introduced it to the medical profession of Europe, especially in Germany and England, where it was extensively used before being brought to this country.

EXPERIMENTAL STUDIES

Many anesthetists and surgeons, remembering certain unfortunate experiences which occurred during the past decade with other barbituric acid derivatives used intravenously, have rightly questioned the safety of evipal. Abundant laboratory and clinical work has demonstrated its safety. Weese and Kennedy and Narayana[3] have conducted extensive animal studies with evipal. They have paid particular attention to the therapeutic index which is the ratio of fatal to anesthetic dose. The higher this figure, the wider the margin of safety. For evipal the therapeutic index for dogs was 3.3 and for cats 4.0. Figure 1[4] shows the minimal anesthetic dose, the lethal dose, and the therapeutic index of several barbiturates when given intraperitoneally to rats. The relative safety of evipal is evident from this chart.

	Dose in mg. per kg.		
Drug	Minimal Anesthetic	Minimal Lethal	Therapeutic Index
Evipal Sodium	25	100	4
Pentobarbital Sodium	50	110	2.2
Amytal Sodium	80	180	2.2
Barbital Sodium	340	480	1.4

Fig. 1. Comparative toxicity of barbiturates when given intraperitoneally to rats.

Various workers have found that, when a lethal dose of evipal is deliberately given to animals, death is always due to respiratory and not cardiac failure. Kennedy and Narayana were able to stop all contractions in a perfused frog's heart with a 1-500 solution of evipal. After waiting nine minutes, the heart was transferred to a fresh Ringer's solution containing four drops of a 1 to 5 million adrenalin solution and it slowly resumed its normal rhythmic contractions. These workers concluded that evipal produced no permanent cardiac damage. These same workers gave sufficient intravenous evipal to cats to cause serious respiratory depression. Intravenous administration of 0.25 cc. of coramine caused marked stimulation of both the rate and amplitude of the respirations with complete recovery. Various animals showed a blood pressure fall of 10 to 25 mm. of mercury under evipal anesthesia. In rabbits the body temperature fell only 1.5° F. and in guinea pigs 2.5° F.

Storm[5] gave three hundred anesthetic doses of evipal to one hundred monkeys and observed no cases of hypersensitivity or acquired tolerance to the drug. Weese gave a group of rabbits a daily subcutaneous dose of 80 mg. of evipal for fifty days and at the end of this period found that the amount required for anesthesia had increased only 25 per cent. Traces of evipal can be recovered in the urine but approximately 97 per cent of it is changed into urea by the liver. In rabbits half the anesthetic dose is so changed in thirteen minutes. In animals, whose livers had been purposely damaged by phosphorus and in those in whom the liver had been surgically damaged, the recovery from evipal was prolonged.

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* Read before the sixty-fifth annual meeting of California Medical Association, Anesthesiology Section, Coronado, May 25-28, 1936.

[1] Weese, H. and Scharpff, W.: Evipan, ein neuartiges Einschlafmittel. Deutsche med. Wchnschr. 58:1205-1207, July 29, 1932.

[2] Weese, H.: Pharmakologie des intravenösen Kurznarkotikums Evipan-Natrium. Deutsche med. Wchnschr. 59:47-48, Jan. 13, 1933.

[3] Kennedy, W. P. and Narayana, B.: Investigations on Pharmacology of Evipal Sodium. Quart. J. Exper. Physiol., 24:68-75, Feb., 1934.

[4] Therapy with the Barbiturates. pp 4. Eli Lilly Co., Indianapolis, 1936.

[5] Storm, C. J.: Untersuchungen über die Evipan-Natrium-Narkose bei Affen, Klin. Wchnschr. 14:504-505, April 6, 1935.

CLINICAL STUDIES

Anschütz,[6] one of the German clinicians who first administered evipal to man, has compiled an interesting graph (fig. 2) to show the relative rapidity of onset, duration and depth of anesthesia with some of the commoner agents. The effective speed of evipal is noteworthy. If continued small amounts are injected, the anesthesia is prolonged and the recovery is considerably slower. The second graph (fig. 3) shows the comparative clinical results of three barbiturates when given intravenously in one gram doses. The speedy recovery from evipal is noteworthy.

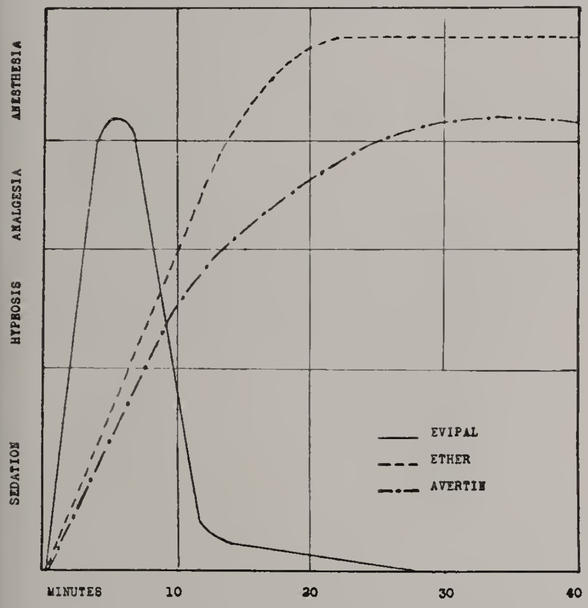

Fig. 2. Comparative rapidity of anesthesia and recovery.

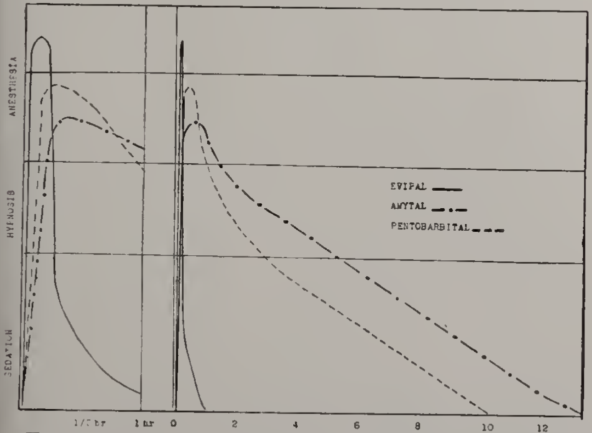

Fig. 3. Comparative clinical results of barbiturates intravenously.

Anschütz, in 1933, was one of the earliest workers to report his results in its clinical use. He had four deaths in 6,400 anesthetics, each of which occurred in old, debilitated individuals whom he felt had received too large a dose of the drug. Shortly after this, the Committee on Anesthesia of the British Medical Research Council collected a series of 25,000 cases from Germany and came to the conclusion that only one death in this group was due to the drug evipal itself. Jarman and Abel[7, 8] have reported 2,400 cases without a death. Livingston[9] reported 280 cases from Bellevue Hospital without fatality. Kassebohm and Schreiber[10] report on its use in obstetrics. They have used evipal in 93 operative and 50 normal deliveries. They commend it for its speedy action and have had no disasters to mother or child. With the rapidly increasing popularity of this anesthesia, there are doubtless many thousands of unreported cases in this country.

The deaths which have been reported are usually attributed to one of three errors: first, is its relatively rapid overdosage in an old debilitated patient. Feeble individuals require a minimal amount of evipal or any other anesthetic; second, is the unwise administration of this drug to persons with badly damaged liver or kidneys, who are unable to detoxify and eliminate it; third, is the giving of this anesthetic to patients with a tremendous sepsis, such as empyema, extensive cellulitis, peritonitis or septicemia. These patients are peculiarly susceptible to all barbiturates.

METHOD OF USE

Sodium evipal is supplied by the manufacturer in one gram quantities as a white powder in a sealed glass ampule (fig. 4). This is mixed with 10 cc. of sterile distilled water immediately before use. A cloudy solution should be discarded as it is unsafe for use, and a solution over three hours old is probably useless as an anesthetic. Heissig[11] found

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[6] Anschütz, W.: Die Kurz-und Rauschnarkose mit Evipan-natrium. Arch. f. klin. Chir. 177:716-734, 1933.

[7] Jarman, R. and Abel, A. L.: Evipal as Intravenous Anesthetic, Results in 1000 Cases. Lancet 1:510-513, March 10, 1934.

[8] Jarman, R.: Recent Advances in Anesthetics. Brit. M. J. 1:796-799, May 5, 1934.

[9] Livingston, E. M., Emy, S., and Lieber, H.: Evipal Sodium: A Short Intravenous Anesthesia. Am. J. Surg. 26: 516-521, Dec., 1934.

[10] Kassebohm, F. A. and Schreiber, M. J.: Use of Evipal Soluble in Obstetrics, with Report of 50 Operative Cases. Am. J. Surg. 31:265-271, Feb., 1936.

[11] Heissig, Ida.: Personal communication.

Fig. 4. Sodium evipal as supplied by manufacturer.

that a solution allowed to stand for fourteen hours had no anesthetic power.

The patient is arranged comfortably on the operating table and told of the sensation of drowsiness which he will have. A suitable vein is selected in the more convenient arm and the needle inserted. One-half cc. of the solution is injected and twenty seconds allowed to elapse to determine if there is any peculiar reaction or sensitivity of the individual. Most surgeons do not exercise this precaution, but two unfortunate transfusion reactions, with supposedly well matched donors, have made us most cautious with the intravenous use of any drug new to that patient on whom it is being used.

Finding no reaction, the patient is instructed to count slowly while the solution is injected steadily. The average adult individual is usually unable to count fifteen before he is sound asleep, during which time 4 to 6 cc. of solution have been injected. We find it well to hesitate at this point because of the sudden apnea which most of these patients experience. Due to some reflex reaction, they often hold their breath for as long as a minute and then commence a quiet, shallow respiration which gradually deepens to that of normal sleep. The color of the skin and mucous membranes remains pink, indicating adequate oxygen supply in the circulating blood.

If the depth of anesthesia is not adequate, injection is continued until the desired relaxation is obtained. The pupils dilate, the corneal reflexes are absent, and in certain cases tongue swallowing and snoring will be very annoying and require an airway. There is no struggling, no cyanosis and no coughing. If injection has been too rapid, there may be involuntary muscle twitchings. The pulse quickens by as much as twenty beats during induction, but slows to a nearly normal rate during anesthesia. The respiratory rate may increase by one-third but there is never any cyanosis from the drug if a free airway is maintained. The blood pressure may rise or fall, depending on the individual patient. In the individual with a normal blood pressure, there is rarely a variation of more than 20 mm. of mercury. Lundy has demonstrated that certain hypertensive patients will show a tremendous fall in blood pressure under evipal anesthesia, but this does not occur among patients with normal pressure.

The actual operation may be commenced within two minutes from the time of the first injection. The needle is left in the vein and, if the relaxation is inadequate, another 1 or 2 cc. of solution may be injected from time to time. The manufacturers are cautious in recommending a maximum dose of 10 cc. but we have given as much as 37 cc. to one patient in fractional doses over a period of forty minutes with no untoward result. When the operative procedure is finished, the patient is carefully watched until consciousness returns. Recovery is usually as quiet and uneventful as the induction, though sobbing or laughing is sometimes encountered.

Care must be taken to see that these individuals do not swallow the tongue or drop the jaw, thus obstructing their airway, and that they do not fall from the table before they are fully awake. It is our practice to keep all patients in the office until they have been fully conscious for an hour. They are always accompanied home by a friend. If a minimal dose of anesthetic has been given for a short procedure, sleep usually lasts for only ten to twenty minutes. The patient who had 37 cc. slept for three hours and on awakening declared "he had been on a delightful drunk."

Amnesia is perfect. None of these patients had any recollection of the procedure. The operation was begun on a few of these patients before they were completely anesthetized and they remembered the initial pain but no other. One woman was crying as she fell asleep and awakened in the same state. Another was laughing both times. One patient got as far as nine in her counting. When she awakened she commenced at ten and reached sixty-three before she was fully awake and stopped counting. Curiously, most of these patients ask for food and drink quite soon after they are in their true senses. Only two of our patients were nauseated, each of whom had eaten less than an hour prior to the anesthetic. From the patient's standpoint, the recovery is an outstanding feature. There are no gastrointestinal disturbances, such as one finds after most inhalation anesthetics. None of our patients complained of headache, either immediate or late.

AUTHORS' EXPERIENCES

We wish to report briefly our experiences with one hundred anesthesias on seventy-eight patients. This is a relatively small number of cases, but represents a variety of work found in an average surgical practice. In these cases evipal was the only anesthetic used. No patient complained of the anesthetic and over two-thirds of those who had previously had other anesthetics voluntarily stated they would never again have anything but evipal, if further surgery should be necessary.

Our patients ranged in age from four to seventy-three years. The kinds of surgical procedures can be gauged from the accompanying chart (fig. 5).

1. Oral Surgery (Dr. B. S. Wyckoff)	10
2. Tonsillectomy	1
3. Carbuncles and Infections Incised	29
4. Excision of Toe Nail	2
5. Tenorrhapy	1
6. Skin Graft	1
7. Lacerations repaired	11
8. Painful dressings	2
9. For relaxing psychic patients	2
10. Stretching sciatic nerve	2
11. Excision pilonidal cyst	1
12. Tubal insufflation (Dr. W. E. Johnson)	2
13. Curettage of uterus	7
14. Cystoscopy	1
15. Rectal surgery	7
16. Suprapubic prostatectomy	1
17. Closure of abdominal evisceration	1
18. Fractures:	
Colles	9
Others	10

Fig. 5. Tabulated Cases.

Name	*Age*	*Dose*	*Time*	*Procedure*
J. S.	29	20 cc.	20 min.	Incision of felon. *Alcoholic.*
		8 cc.	7 min.	Dressing of finger.
				Suture of face lacerations.
H. L.	28	20 cc.	24 min.	Incision of felon. *Alcoholic.*
		10 cc.	20 min.	For research. *Diabetic.*
J. H.	66	5 cc.	6 min.	Incision of gluteal abscess.
		8 cc.	10 min.	Incision of gluteal abscess.
		8 cc.	10 min.	Incision of gluteal abscess.
M. H.	24	10 cc.	20 min.	Incision of axillary abscess.
		6 cc.	10 min.	Incision of axillary abscess.
		25 cc.	40 min.	Excision of axillary glands.
F. A.	32	16 cc.	25 min.	Reduction of Colles fracture.
		14 cc.	20 min.	Insertion of traction wire.
J. D.	36	10 cc.	15 min.	Reduction of dislocated finger.
		10 cc.	15 min.	Reduction of Colles fracture.
C. B.	55	10 cc.	20 min.	Reduction of Colles fracture.
		8 cc.	15 min.	Reduction of fractured fibula.
V. K.	32	23 cc.	20 min.	Incision of plantar abscess.
		8 cc.	10 min.	Painful dressing.
M. J.	60	5-10 cc. 10 doses	5-10 min.	Hodgkin's disease, recurrent carbuncles of scalp excised.
E. N.	42	10 cc.	15 min.	Extraction of teeth. *Diabetic.*
		10 cc.	15 min.	Extraction of teeth.
F. D.	72	6 cc.	15 min.	Cystoscopy.
		20 cc.	55 min.	Suprapubic prostatectomy.
		10 cc.	25 min.	Excision of rectal polyp.

Fig. 6. Multiple Doses.

We feel that the one death in our series was in no way due to the evipal. This patient's wound eviscerated on the ninth postoperative day following salpingectomy under ether. The wound was successfully closed under evipal and the patient was awake and rational for some ten hours before she suddenly died from what was apparently a pulmonary embolus. Unfortunately, no autopsy was permitted.

Eleven patients had evipal more than once (fig. 6). One patient had evipal no less than ten times because of recurrent carbuncles in conjunction with Hodgkin's disease, without any increased anesthetic dosage for her later operations. Although the manufacturers recommend that a maximum dose of 1 gram of the powder or 10 cc. of a 10 per cent solution not be exceeded with the average adult, we have twelve patients to whom we have given 20 cc. or more without untoward results (fig. 7). Alcoholics are tolerant to evipal as they are to other anesthetics. One of our female patients, who had consumed abundant whiskey to deaden the pain of a felon of five days duration, was not even sleepy after the injection of a full 10 cc. A total of 20 cc. was required before she was asleep and the finger could be opened. The man receiving the 37 cc. admitted that he drank "all that he could afford to buy."

Name	*Age*	*Dose*	*Time*	*Procedure*
F. V.	26	20 cc.	35 min.	Stretching sciatic nerve.
M. S.	18	24 cc.	60 min.	Repair lacerated hand.
V. K.	32	23 cc.	30 min.	Drainage plantar abscess.
M. H.	24	25 cc.	40 min.	Excision axillary glands.
F. D.	72	20 cc.	55 min.	Suprapubic prostatectomy.
D. B.	58	30 cc.	30 min.	Closure of abdominal wound.
J. W.	30	28 cc.	45 min.	Repair fractured mandible.
M. F.	31	31 cc.	40 min.	Repair fractured mandible.
C. B.	8	20 cc.	40 min.	Repair lacerated face.
J. S.	29	20 cc.	20 min.	Incision of felon. *Alcoholic.*
H. L.	28	20 cc.	24 min.	Incision of felon. *Alcoholic.*
J. B.	38	37 cc.	50 min.	Skin graft. *Alcoholic.*

Fig. 7. Large Doses.

There have been seven children under twelve years of age (fig. 8). The eight year old who had 20 cc. had such a badly mangled face that any inhalation anesthetic could have been given only by intratracheal route. Children, as a rule, require small amounts of evipal. It is ideal for them because they are not frightened by the smothering sensation of the ether or gas mask and they have no unpleasant memories. If the solution escapes into the surrounding tissues, there is no slough.

Age	*Dose*	*Time*	*Procedure*
4 yrs.	4 cc.	5 min.	Removal of infected toe nail.
5 yrs.	8 cc.	15 min.	Reduction of fractured femur.
6 yrs.	3 cc.	30 min.	Incision of cervical abscess.
8 yrs.	20 cc.	40 min.	Repair of severe lacerations of face, nose, mouth.
10 yrs.	7 cc.	10 min.	Reduction of fractured metacarpal.
12 yrs.	8 cc.	20 min.	Tonsillectomy.
9 yrs.	2.5 cc.	6 min.	I. and D. of cervical abscess.

Fig. 8. Children.

EXPERIENCE WITH DIABETICS

A safe anesthetic for the diabetic patient would be most welcome. Improved spinal anesthesia has made certain surgery much safer for these individuals but is not adaptable to all procedures.

In some of their animal experimentation, Kennedy and Narayana did blood sugar examinations. In studying fourteen guinea pigs, they found that the blood sugar did not vary more than 2.5 per cent following an anesthetic dose of evipal. Studying eight rabbits, they found a maximum change of 4.6 per cent. In contrast to this, Underhill and Sprunt[12] have given an anesthetic dose of amytal intraperitoneally to rabbits and have found the blood sugar increased by as much as 140 per cent. In man, White and Collins[13] did preoperative and postoperative blood sugar studies in twenty-nine patients to whom they gave evipal. Twenty of these showed an average rise in blood sugar of 23.8 mg., while eight showed an average fall of 17.1 mg. They do not record any diabetic patients in this group. The postoperative conditions were apparently not standardized or controlled, as many of these patients had a hearty meal before the second blood was drawn. This factor may well account for the rise of 23.8 mg.

In this series there were two severe diabetic patients, to each of whom we have given evipal twice. The first man, age 26, normally took 60 units of insulin daily to keep his urine practically sugar-free. A felon of the left index finger had been so painful that he had been consuming over a pint of whiskey daily for a week. His urine precipitated a brick red deposit with the Benedict test. His insulin was increased to 90 units, the alcohol stopped, and in three days the felon was opened under evipal. Blood sugar determinations before, during and after anesthesia showed a decrease rather than an increase (fig. 9).

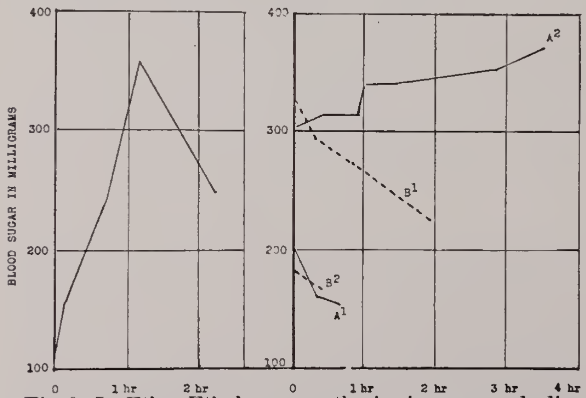

Fig. 9. I, Ether-Ethylene anesthesia in prepared diabetic. II. Evipal anesthesia in unprepared diabetic patients, twice each. A1, 20 cc. incision of felon; A2, 10 cc. for research; B1, 10 cc. teeth extraction; B2, 10 cc. teeth extraction.

Dr. P. A. Gray, of the Sansum Clinic, was interested to know whether this decrease was a constant finding so this man consented to a "research anesthesia" a month after the first. Through the courtesy of Dr. Gray, further blood sugar determinations were made. The initial blood sugar determination was higher because he had become careless about his diet and had voluntarily reduced his insulin dosage. Both of these anesthesias were given in the morning to a patient who had neither food nor insulin since the previous evening meal. The rise in the successive sugar determinations is probably no more than one would expect to find in so severe a diabetic who had been deprived of food and insulin for so long a time.

The second diabetic patient was a man of 42, who had been under Dr. Gray's care for a number of years, and had required as much as 80 units of insulin daily. He was given evipal anesthesia on two occasions, five days apart, so that Dr. B. S. Wyckoff could extract several abscessed teeth. This man had had his regular breakfast and insulin dosage prior to each procedure. Other than this, there had been no special preparation, yet his blood sugar determinations were most satisfactory. The contrasting chart taken from McKittrick and Root[14] shows the sharp elevation of the blood sugar under ether-ethylene anesthesia on a diabetic patient of theirs who had most careful preoperative preparation.

The barbiturates which were formerly used for intravenous anesthesia were prolonged in their action and, like ether and gas, invariably produced varying degrees of acidosis. In these four evipal anesthesias there was no evidence of acidosis. We realize that one cannot safely draw conclusions from the sudy of only two patients. However, we do believe that evipal merits further study as an anesthetic for diabetics.

SUMMARY

A personal experience with one hundred administrations of evipal as an intravenous anesthetic is reported. The reported laboratory studies and clinical experience of others is in accord with our conclusions that evipal merits a permanent place as a useful and safe anesthetic. Because of the newness of intravenous anesthetics, the extent and limitations of evipal are not fully known. Care in the selection of cases and administration of the drug should lead to increased popularity with this anesthetic.

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[12] Underhill, F. P. and Sprunt, D. H.: Influence of Amytal upon Blood Sugar Content. Proc. Soc. Exper. Biol. & Med. 25:137-138, Nov., 1927.

[13] White, C. S. and Collins, J. L.: Evipal Anesthesia. South. Med. & Surg. 96:335-339, July, 1934.

[14] McKittrick, L. S. and Root, H. F.: Diabetic Surgery. p. 79. Lea and Febiger, Philadelphia, 1928.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of
Oregon, Washington and Idaho
Devoted to the Interests of the Medical Profession
of the Pacific Northwest

Editorial Office, 543 Stimson Building, Seattle, Wash.

NOVEMBER, 1936

EDITORIAL

THE GENERAL PRACTITIONER AND SYPHILIS

Seldom has the medical profession been more thoroughly or more competently damned than it was April 13 by Joseph Earle Moore.[1] The criticism rankles, not because it is unjust, far fetched nor unreasonable, but because unfortunately it is probably in a large measure true. It brings to our attention a state of affairs in regard to handling the problem of syphilis which is nothing to be proud of. It also brings to mind the fact that a great deal is going to be heard about syphilis during the next few years, and unless the profession at large becomes interested enough to handle the situation, the major portion of diagnosis and treatment of this disease is going to be taken over by public health agencies which are already preparing themselves for the task. This is unfortunate, since there are few conditions more needful of the secrecy and sympathy afforded by the private practitioner.

Syphilis, the word, is to be put into the everyday vocabulary of the people of this country and is to appear in the daily press without reservation. It will also probably be voiced on the air without hesitation. The public is to be educated very thoroughly and very persistently about the disease as a disease or a medical problem, with moral implications disregarded. For this we may thank the United States Public Health Service and its head, Surgeon General Thomas Parran, Jr. In so enlightening the people and in leading them to look at the disease without prejudice, prudery or bigotry, he will have done as much or more than any of his brilliant predecessors in that great office. If he succeeds in agitating the profession into more interest in this as well as other matters of public health, he will have conferred on both the profession and the public benefits of truly inestimable value.

That such agitation is needed Moore[1] leaves little doubt. He says, ". . . Treatment facilities at present available in the United States are not adequate for the control of syphilitic infection. . . . If the incidence rate of syphilis in this country were the same as in Denmark, we should have only 24,000 new cases annually instead of 1,100,000. . . . For the present case load available facilities are little more than 25 per cent efficient, and for the potential case load only about 10 per cent efficient. . . . (there is) one other factor, which applies to early and late syphilis alike, namely, the ignorance of many physicians of the elementary methods of recognizing syphilis. . . . Physicians must be better trained in the principles and technic of treatment so that patients will not be prematurely dismissed from treatment or driven away by technical ineptitude. . . . Facilities . . . provided by physicians . . . care for perhaps 20 per cent . . . More clinics are urgently needed. . . . Expansion (of clinics) properly originates with public health officials."

Certainly these statements constitute a severe condemnation of the medical profession and at the same time a very clear indication as to our future conduct. If facilities of private practice care for only one patient out of five, while the remainder are left to the care of various types of free clinics, then something should be done to extend these facilities to a large share of the missing patients. If private physicians are ignorant as to methods of diagnosis and treatment, then the various local societies and study clubs should make a concerted effort during the next few years to eliminate this weakness. If internes who intend to go into private practice are not familiar with syphilis, they should have the benefit of considerable instruction in this field, and if such instruction is not provided, the hospital should be censured. If more clinics are needed, the organized profession of the needy community should take the lead in their establishment and operation. And, finally, complete cooperation with the health authorities should be maintained in reporting and follow up, since in this field they may be of much help.

COLUMBIA RIVER MEETING

Never has a state medical society meeting been held on the banks of the mighty Columbia river until last month, when Oregon State Medical Society held its annual gathering at The Dalles. The more one sees of this incomparable stream, the more he appreciates the gigantic workings of nature during prehistoric millenniums, when a thousand or more miles of gorges were carved by its meanderings through the state of Washington with the final Columbia Gorge separating the two states. No one can become familiar with the geology of this northwestern country until he has beheld this second largest river of the United States as presented in its marvelous course from British Columbia to the Pacific. The attractive city of The Dalles is situated in an impressive setting, displaying the characteristics of the adjacent states on the north and south banks of the great river.

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[1] Moore, J. E.: Development of Adequate Treatment Facilities for Control of Syphilis. J. A. M. A., 107:787-790, Sept. 5, 1936.

While not as large numerically as commonly appears in the larger cities, the attendance at this meeting was representative of the profession from all parts of the state. It has been noted that meetings of the state society in some of the smaller cities are advantageous to the local doctors as well as the profession of the state through the publicity thus given to medical practice and the medical problems which concern all the people. An interesting program of scientific papers was presented at this meeting, for the most part prepared by members of the society, supplemented by interesting and instructive addresses from Clifford Sweet of Oakland, Calif., and C. E. Dolman of Vancouver, B. C. The address by Joseph Tamura of the University of Cincinnati Medical School was noteworthy by reason of the fact that he has spent much time at The Dalles, this constituting for him a homecoming.

Noteworthy at the annual banquet was the presence of Olin West of the American Medical Association, who reviewed some of the problems confronting the profession in a concise and impressive manner. There is no denying the fact that there is danger of legislative procedures which may develop a threatening situation against the independence and stability of medical practice in our country. Dr. West specified details of what may be possible which are justly entitled to cause alarm unless the profession of the country and its friends are alert to thwart the evident intention of some legislators and scheming reformers. It is manifest that the medical profession of this country cannot remain inactive in a complacent belief that the danger of impending social legislation detrimental to medical practice has been averted. This was a timely address, the substance of which should be constantly in the mind of every physician.

An interesting feature of the meeting was the presence of Alfred C. Kinney, 93 years of age, the first president of the society when it was organized in 1874, who served a second term fifty years later. His alertness and keen observations defy his advanced years. He was present at all the sessions of the meeting and was conspicuous at the banquet. He excited much merriment by his humorous recital of amusing occurrences in the infancy of the society. He is a striking example of the quality often recommended of growing old gracefully.

The business of the society was effectively conducted at three breakfast meetings of the House of Delegates, scheduled at 7 a.m. The fact that this early hour is not a hindrance to attendance and business was testified by the presence of some forty or more participants at these early gatherings. All present at this annual meeting felt repaid and gratified for the privilege of attendance and courtesy of the physicians and their wives of The Dalles.

A PROFITABLE MEDICAL BANQUET

The banquet has been used as an instrument of policy since man first laid away his stone ax. History is surfeited with famous feasts from Belshazzar to the gridiron. Medical banquets are of an ancient lineage. Too often have they preserved the ritual at the expense of the spirit. Too often are they poorly conceived, dreary and purposeless occasions. The food may or may not be bad, depending on the resourcefulness of the arrangements committee, underprivileged and with an inadequate experience save for such ideas regarding service and arrangements as may have been gleaned by attendance at Kiwanis luncheons.

At times the banquet has been chiefly an occasion for boistrous conviviality to the neglect of literary or scientific purpose. The arrangements committee might well consider and dictate the type of talk permitted at these events. An incredible amount of food is ruined by poor banquet speakers. Webster defines a banquet as a feast, a sumptuous entertainment. If the committee chooses a speaker to talk for two hours on "The Problems Confronting the Medical Profession," some word other than banquet should be used to describe the occasion.

Surfeited with the traditional form of these functions, some medical organizations have abandoned the stereotyped formula and introduced new features for the annual feasting. A notable illustration of the possibilities for novelty in banquets was afforded at the 1936 meeting of Idaho State Medical Association. Of the four hundred attending the event, approximately half were guests of the association or of the members. Included were national and state officials, justices of the Supreme Court, district judges, lawyers, newspaper men, clergymen, educators, bankers, business men and women and members of related professions. The decorations and entertainment showed the result of hard work applied with intelligence. Dr. Ralph Lutz of the Department of History at Stanford gave the only address. There was no reference to any medical problem, giving the occasion a unique distinction.

The character of the invited guests suggested this event as being a purposeful thing, in which an interesting experiment in public relations was attempted. It was an effort by the profession in Idaho to get together and become acquainted with a cross section of that group of citizens not directly interested in medical affairs. It represents an experiment which might be studied to advantage by other medical groups.

PUBLICATION OF REPORTS

One of the first functions of a state association journal is the publication of the reports of proceedings of annual meetings. Since this journal represents three state organizations, the annual report of each is published at length in an issue toward the end of the year. In addition to these reports of annual meetings, it is considered beneficial by the officials of many of the county societies to have their proceedings published from month to month. This suffices to demonstrate the activities and scientific attainments of the society so reported. It has been the purpose of this journal for many years to utilize necessary space for these county society reports, provided the secretaries exhibit sufficient amount of interest to send in the reports for publication. From time to time attention of the county secretaries has been called to this provision which the journal gladly offers to provide publicity for the society proceedings. The beginning of fall activities seems to be the logical occasion again to call attention to this matter. Therefore, the county secretaries are reminded that the reports of their society transactions will be published from month to month, if they will mail them to the editor for that purpose. In order to insure incorporation in the following month's issue, the material should be received by the 25th of the month.

At this time occasion is taken also to call attention to the directory of county medical societies in the advertising section of the journal which lists the officials of the county organizations of our three states. It is desired to present correctly the presidents and secretaries of each of the societies. It is impossible, however, for the editor to publish accurate lists unless changes are received when new officers are elected. Occasionally notification has been given of a county society officer who has been dead for quite a long period and his name still continued in an official capacity. The editor cannot be held responsible for such an error since he has no means of information other than what is received from those familiar with the situation.

MEDICAL NOTES

OREGON

Portland Academy of Medicine held a meeting October 8, at which papers were read by Thomas F. Mullen and Carl L. Hoag of the University of California. Both papers were on problems relating to the esophagus.

New Hospital. McMinnville is to have a new twenty-three bed hospital, to be erected by Dr. John Manning at a cost of $35,000. Schedules call for occupancy by February 1.

Hospital Addition. A new dormitory is being built for Sisters of St. Joseph who recently took over the Pacific Hospital at Eugene and renamed it Sacred Heart. The addition will cost $18,000.

Doctor Wins Suit. A $50,000 suit against R. L. Bosworth of Corvallis was decided in favor of the defendant. The plaintiff was instructed to pay costs of the trial, which had been on the calendar for several months.

Harry J. Alvis, formerly of Newberg, has moved to McMinnville, where he will be associated with W. H. and E. H. Barendrick and A. G. Noble. His practice at Newberg will be taken over by W. T. Edmundsen of Athena.

Carl G. Ashley has been appointed to fill the Portland school department position recently resigned by Paul Hansen.

D. W. Gregg has moved from Fossil to The Dalles, where he has recently opened an office.

WASHINGTON

The American Society for the Hard of Hearing has branches in various states, the league in Seattle being located at 317 Bay Building. It is claimed there are three million children in this country who have had some degree of lost hearing. Many people with various grades of deafness have been very much helped by mechanical hearing devices. These leagues hold regular meetings of a social character and the presentation of lip reading. This movement desires the endorsement and assistance of the medical profession.

New Infirmary at University. The old frame building which has housed the Health Service at the University of Washington has been turned over to typing classes while the department, under the direction of David Hall, has been removed to a new seventy-bed hospital. The new infirmary, built at a cost of $200,000, has much improved facilities for outpatient service as well as full hospital equipment, except surgery, for adequate care of inpatients.

Clinic Expands. The Rockwood Clinic of Spokane is adding a new four story wing which will bring the bed capacity to fifty. Foundations are in and it is expected that the building will be completed by January first.

State Sues Pierce County. The state has asked $79,000 from Pierce county for care of patients committed to hospitals for the insane. The constitutionality of the 1925 law, which requires each county to pay for care of its otherwise unsupported nondangerous insane, is questioned by the defense. It is claimed that the state should care for all insane patients regardless of the violence of the insanity.

Great Northern Railroad Surgeons met September 25 at the Olympic Hotel, Seattle, for their annual convention. Traumatic surgery was the subject of most of the discussion.

Child Health Meeting. A conference under the direction of the Division of Maternal and Child Hygiene of the State Health Department was held at Ilwaco October 16. C. Luverne Smith of Seattle examined the children.

Snohomish County Surgical Society was recently organized at Everett. Russell Townsend was elected president, William Wagner, vice-president, and H. R. Secoy, secretary-treasurer.

Abortion Ring Claimed. W. Norman Powers of Seattle was charged in Los Angeles recently with conspiracy to perform illegal operations in a coast-wide ring. Powers was pardoned by Governor Martin from a conviction in 1929.

Golf Meet. Doctors from the four counties of King, Whatcom, Skagit and Snohomish met October 7 at Everett Golf and Country Club for an afternoon of golf followed by a no-host dinner. It is planned to repeat the meeting several times a year.

Mantoux Test In Tacoma. All students in the high schools of Tacoma will be offered the opportunity of taking the Mantoux test for tuberculosis at some time this winter. The test is sponsored by the Antituberculosis League of Pierce county.

Played Football, 1884. A recent visit of one of his team mates has brought to light the fact that E. J. Taggart, who has retired from practice and lives in Bremerton, was a member of the first football squad at Notre Dame.

Field Dedicated. A new athletic field and grandstand at Buckley were recently dedicated to the memory of Dr. John Hayward Sheets, who died eight years ago.

S. W. Poindexter, who has practiced for some time at Puyallup, Wash., has moved to Boise, where he will be associated in the practice of internal medicine with Ernest A. Laubaugh.

R. A. Benson has resigned from the medical department of the Navy and has taken over the practice of E. G. Longley of Bremerton. Dr. Longley has moved to San Francisco.

Joyce Albert, formerly of Los Angeles, has settled in Hoquiam. He will temporarily take care of the practice of Harry Watkins, who is on an eastern clinical trip.

North Pacific Society of Internal Medicine held its fall meeting at the Empress Hotel, Victoria, September 4 and 5.

Hospital Fire. The emergency station operated at North Bonneville by the National Hospital Association was destroyed by fire October 8.

New Health Officer. John Kahl has taken over the duties of health officer of Clarke county, a position recently vacated by Clyde Hutt.

Rolf K. Eggers, formerly with a CCC camp in Arkansas, has located in the Ballard district of Seattle.

Arthur A. Yengling, formerly of the Lakeside Hospital, Cleveland, has opened an office in Walla Walla.

M. W. Conway of Elma has been a patient in a Portland sanitarium recently.

IDAHO

Hospital Enlarged. The sum of $7,000 federal funds has been set aside for an eight room addition to the Schiltz Memorial Hospital at American Falls, the total cost of which will be over $16,000. Nurses' quarters and one hospital wing are to be enlarged. The grant of money by the federal government is an outright gift to the county.

Hospital Repaired. The Protestant Hospital at Baker is undergoing repairs following the destructive fire of August 29. A new roof, much plaster and extensive kalsomining were necessary.

M. B. McQueen has been appointed director of the Bannock county health unit at Pocatello, a post vacant since the resignation of Samuel Weissross.

Frank M. Sprague, who has practiced for some time at Pocatello, has located at Boise, where he will specialize as a pediatrician.

Benjamin Eisenberg, recently a practitioner in Chicago, has located at Pocatello, where he will be engaged in general practice.

James W. Creed, formerly physician for a CCC camp near Challis, has opened an office in Filer.

OBITUARIES

Dr. Mathew Grieve of Spokane, Wash., died October 6 following several months of ill health. He was 71 years of age. He was born in Seaforth, Ontario, and came to the United States in 1880. He received his degree in medicine from the University of Oregon in 1897 and settled in Spokane in 1903. For several years he did work with the city health office and for the past ten years had been a deputy coroner.

Dr. Arthur E. Henby of Seattle, Wash., died October 8 of coronary disease, aged 62. He was born in 1874 and received his medical degree from Chicago Homeopathic Medical College in 1897. He practiced in Sharon, Wis., before moving to Seattle, where he had practiced for twenty-seven years. During the World War he was a captain in the medical corps, serving at Camp McArthur, Texas.

Dr. Earl D. Jones of Roberts, Ida., died September 24 of pneumonia, aged 59. He was born in Iowa in 1877 and had practiced in Roberts for twenty-five years. He was always active in civic affairs of the community and was a member of the state legislature in 1933.

Dr. C. H. Day of Dayton, Wash., died October 5, aged 81. He was born in Pennsylvania in 1885, and received his medical degree in 1886 from the Hahnemann Medical College, Chicago. His first practice was at Union, Oregon, but he soon moved to Dayton, where he practiced for nearly forty-five years.

Dr. William P. O'Rourke, for many years a practitioner of Seattle, Wash., died September 27 at Las Vegas, Nevada, aged 70 years. He was born in New York City in 1866 and received his medical education at Toledo Medical College, Toledo, Ohio. He was formerly superintendent of King County Hospital at Georgetown, and prior to his retirement in 1934 had served a number of years with the Seattle Health Department.

Dr. Frank L. McCauley of Post Falls, Idaho, died in a Spokane hospital October 12, aged 59. He graduated from the Illinois Medical College in Chicago in 1905.

REPORTS OF SOCIETY MEETINGS

WASHINGTON STATE MEDICAL ASSOCIATION

MINUTES OF THE FORTY-SEVENTH ANNUAL MEETING OF WASHINGTON STATE MEDICAL ASSOCIATION, YAKIMA, Aug. 31-Sept. 2, 1936

The forty-seventh annual meeting of Washington State Medical Association was held at the Elks Temple, Yakima, Wash., August 31-September 2, 1936.

BOARD OF TRUSTEES

Tuesday, September 1

The Board of Trustees met at the Elks Temple, Yakima, September 1, at 8:45 a.m. On roll call the following were present: D. F. Bice, N. L. Thompson, V. Spickard, J. E. Bittner, Jr., E. C. Leach, H. Rhodehamel, G. Anderson, A. E. Gerhardt, Carroll Smith, W. D. Read, A. Betts.

It was voted that a charter be issued to Skagit County Medical Society. It was voted that the Coulee Dam Society be issued a charter.

It was voted that Washington State Medical Association donate $50 each year to the Washington Golf Association.

On motion it was voted to adjourn to meet with the House of Delegates at 9 a.m.

HOUSE OF DELEGATES

First Session

September 1, 9 a.m.

The meeting was called to order by President D. F. Bice. On calling the roll a quorum was found present with the following answering the roll call: R. S. Mitchell, L. E. Hockett, H. D. Fritz, M. P. Graham, R. D. Forbes, G. Marshall, F. Slyfield, C. W. Knudson, C. W. Sharples, M. S. Jared, A. J. Bowles, H. E. Nicbols, J. M. Bowers, F. Le For, H. Feagles, J. R. Turner, C. R. McCreery, W. D. Read, W. B. Penney, R. K. Behrns, A. P. Duryee, D. Lewis, J. G. Matthews, R. J. Sprowl, D. D. Lyon, E. J. Rhoades, C. S. Hood, W. L. Ross, Kay England.

On motion of A. P. Duryee it was voted that Skagit County Society be granted a charter.

On motion of Carroll Smitb it was voted that a charter be granted to Coulee Dam Medical Society.

Committee Reports

It was voted that reading of committee reports be dispensed with and that tbey be published with the minutes in Northwest Medicine.

Secretary-Treasurer's Report

V. W. Spickard, Secretary Treasurer, presented the following audit of his accounts whicb was accepted:

Official Audit

Pursuant to request, I have examined the books and records presented me of Washington State Medical Association, General Association Fund, Legal Defense Fund, and Special Publicity Fund, for the six months ending June 30, 1936, and now present my report. As a part of this report, I have prepared and attached hereto the following Exhibits:

Medical Association Fund—Exhibit "A"
Medical Association Fund, Disbursements—Exhibit "B"
Legal Defense Fund—Exhibit "C"
Legal Defense Fund, Disbursements—Exhibit "D"
Legal Defense Fund, Securities—Exhibit "E"
Special Publicity Fund—Exhibit "F"

While I believe tbese Exbibits are in a large measure self-explanatory, I wisb to comment upon tbem briefly and shall do this in the order in which they appear.

MEDICAL ASSOCIATION FUND

Receipts from membership dues for the period have amounted to $5,390, being remittances from 1079 members; 935 of these were for 1936, 128 for 1935, 11 for 1934, 3 for 1933 and 2 for 1931. These amounts were satisfactorily reconciled with the cash book and by comparison with remittance reports on file from the secretaries of the various county societies. This fund has also been credited with $6.53 interest received from the Washington Mutual Savings Bank, and $2,729.10, being 33 1/3 of contributions to Special Publicity Fund, as shown by Exhibit "F," making a total receipts of $8,125.63. This amount added to your January 1 balance of $3,769.54 makes a total of $11,895.17 to be accounted for.

Disbursements have amounted to $3,967.16 as shown by Exhibit "B," leaving a balance to the credit of this fund of $7,928.01, an increase of $4,158.47. This balance is made up of balance at Seattle First National Bank, Metropolitan Branch, $7,399.40, and Washington Mutual Savings Bank, $528.61. Contained in this fund is $3,767.69, Special Publicity Fund Contributions received from July 1, 1935 to June 30, 1936.

LEGAL DEFENSE FUND

Receipts from subscriptions to this fund have amounted to $3,235. Interest on bonds, $724.25, interest on Washington Mutual Savings Bank, $88.91, gain on sale of bonds, $289.94, making a total receipts of $4,338.10 for the period. This amount, added to your January 1 balance of $33,065.42, makes a total of $37,403.52 to be accounted for. Disbursements have amounted to $3,048.24, loss on sale of Dominion of Canada Bonds, $2.89. These amounts deducted from the above total leave a balance to the credit of this fund of $34,352.39, made up as shown by Exhibit "E," an increase of $1,286.97 for the period.

SPECIAL PUBLICITY FUND

Receipts from contributions to this fund have amounted to $8,187.31, which amount has been disposed of as shown by Exhibit "F"; Public Relations Committee, $2,729.11; Public Health League, $2,729.10, and General Fund, $2,729.10.

GENERAL

Bank balances have been satisfactorily reconciled with statements received from the depositories. The bonds were examined by me June 30, 1936, and found to be intact with all uncashed coupons attached, except St. Louis & San Francisco Railway Bonds which have defaulted. These bonds have been turned over to the reorganization committee and their receipt taken for same and is on file. Interest on Washington Mutual Savings Bank and Coolidge Mutual Savings Bank accounts was duly entered on their pass books July 2, 1936. These amounts are not included in this report.

All disbursements have been made by voucher check drawn on your regular depository. They have been endorsed and cleared through the bank in regular order. Invoices from parties to whom payments have been made are on file or payments authorized by your minutes or By-Laws.

The attached exhibits are in agreement with your books and, together with the foregoing remarks, in my opinion show the true condition of the three funds, as at June 30, 1936, and the correct amount of receipts and disbursements for the six months ending that date.

Respectfully submitted,
Louis E. Smith, C. P. A.

Exhibit "A"

Medical Association Fund

June 30, 1936

Balance January 1, 1936		$3,769.54

Receipts

Membership dues collected Jan. 1 to June 30, 1936:

County Society	*No. Members*	*Amount*
Chelan	20	$ 100.00
Clark	30	150.00
Cowlitz	13	65.00
Grays Harbor	25	125.00
Grant	8	40.00
Jefferson	5	25.00
King	494	2,470.00
Kitsap	16	80.00
Klickitat	3	15.00
Lewis	23	115.00
Lincoln	9	45.00
Okanogan	7	35.00
Pacific	2	10.00
Pierce	117	582.50
Snohomish	7	35.00
Spokane	130	647.50
Stevens	1	5.00
Thurston-Mason	20	100.00
Walla Walla	36	180.00
Whatcom	19	95.00
Whitman	18	90.00
Yakima	76	380.00
Total members	1,079	

Total receipts from members	$5,390.00	
Add:		
Interest received	6.53	
Special Publicity Fund—Exhibit "F"	$2,729.10	
Total receipts	$8,125.63	
Deduct:		
Disbursements—Exhibit "B"	$3,967.16	
Increase in fund		$4,158.47
Balance to credit of this fund		$7,928.01
Made up as follows:		
Seattle First National Bank (Metropolitan Branch)	$7,399.40	
Washington Mutual Savings Bank	528.61	

Note: This balance includes $3,769.69 being General Funds share of contributions received from Special Publicity Fund from July 1, 1935, to June 30, 1936—see Exhibit "F."

Exhibit "B"

Disbursements

January 1 to June 30, 1936

Trustees' meeting, Seattle, January 12	$ 184.80
Trustees' meeting, Seattle, April 8	119.05
Trustees' meeting, Yakima, May 24	109.51
Social Hygiene Committee	50.00
Neoplastic Committee	100.00
By-Laws Revision Committee	129.00
President's Office	76.56
Secretary-Treasurer's Office	356.90
Louis E. Smith, C.P.A., semi-annual audit	75.00
Louis E. Smith, C.P.A., special audit	37.50
Hollywood Gardens, flowers (Dr. Thomson)	10.20
Hollywood Gardens, flowers (Dr. Mason)	10.20
George W. Rourke, Inc., bond, Drs. Wright and Spickard	10.00
Mrs. Bertha M. Thomson, office furniture	87.15
Remington Rand, Inc., typewriter	132.70
Lumbermen's Prtg. Co., 250 Fellow Certificates	285.60
Lumbermen's Prtg. Co., mailing expense on above	27.99
Northwest Journal, subscriptions	2,165.00
Total disbursements to Exhibit "A"	$3,967.16

Exhibit "C"

Legal Defense Fund

June 30, 1936

Balance January 1, 1936	$33,065.42

Receipts

Subscriptions from members from the following counties during the six months ending June 30, 1936:

County Society	*No. Subscribers*	*Amount*
Chelan	4	40.00
Clark	5	50.00
Clallam	5	50.00
Cowlitz	6	60.00
Grays Harbor	10	100.00
Island	1	10.00
King	155	1,550.00
Kitsap	6	60.00
Lewis	3	30.00
Pacific	1	10.00
Pierce	37	370.00
Skagit	3	30.00
Snohomish	11	110.00
Spokane	19	190.00
Stevens	2	20.00
Thurston-Mason	7	70.00
Walla Walla	5	50.00
Whatcom	5	50.00
Whitman	2	20.00
Yakima	37	365.00
Total subscribers	324	

Total receipts from subscribers		$3,235.00	
Add:			
Interest received		813.16	
Gain on sale Youngstown Steel & Tube Bonds (received $1,049.40, cost $1,003.95)		45.45	
Gain on sale Pacific Gas & Electric Bonds (received $2,099.32, cost $1,975.75)		123.57	
Gain on sale Illinois Bell Telephone Bonds (received $1,049.44, cost $1,025.20)		24.24	
Gain on sale Standard Oil Company Bonds (received $2,019.18, cost $1,922.50)		96.68	
Total receipts		$4,338.10	
Deduct:			
Loss on sale Dom. of Canada Bond (cost $1,002.50, received $999.61)	$ 2.89		
Disbursements—Exhibit "D"	$3,048.24	3,051.13	
Increase in fund			1,286.97
Balance to credit of this fund June 30, 1936, made up as shown by Exhibit "E"			$34,352.39

Exhibit "D"

DISBURSEMENTS

January 1 to June 30, 1936

Secretary-Treasurer's Office	$ 520.62
By-Laws Committee	48.95
Accrued interest on bonds purchased	61.94
Board of Governors Meeting, Seattle, March 8	24.00
Board of Governors Meeting, Yakima, May 24	42.00
Aetna Casualty & Surety Co., bond, Drs. Spickard and Wright	153.75
Louis E. Smith, C.P.A., semi-annual audit	75.00
Louis E. Smith, C.P.A., special audit	37.50
Mrs. K. Rubble, refund subscription	10.00
Lumbermen's Prtg. Co., certificates	36.47
Lumbermen's Prtg. Co., stationery	12.08
Lumbermen's Prtg. Co., post cards	25.50
First National Bank, safe deposit box	4.40
Cost of defending ten malpractice suits	1,996.03
Total disbursements to Exhibit "C"	$3,048.24

Exhibit "E"

LIST OF BANK BALANCES AND SECURITIES ON HAND MAKING UP BALANCE OF THIS FUND JUNE 30, 1936

Seattle First National Bank (Metropolitan Br.)	$ 3,186.08
Washington Mutual Savings Bank	7,202.36

Coolidge Mutual Savings Bank	3,000.00
U. S. Government Bonds, cost	3,950.00
Southern Counties Gas Co. Bonds, cost	947.50
Canadian National Railway Bonds, cost	1,965.00
Pacific Telephone & Telegraph Co. Bonds, cost	1,017.70
American Telephone & Telegraph Co. Bonds, cost	3,018.75
St. Louis & San Francisco Railway Bonds, cost	1,940.00
(Defaulted—Certificate of Deposit with Trustees, August 8, 1933)	
Port of New York Authority Bonds, cost	4,090.00
Union Pacific Railway Bonds, cost	1,980.00
(Temporary Bonds on hand)	
Pacific Gas & Electric Co. Bonds, cost	2,055.00
(Temporary Bonds on hand)	
Total	$34,352.39

Exhibit "F"

SPECIAL PUBLICITY FUND

January 1 to June 30, 1936

Receipts

Chelan County Society	$ 265.00
Clark County Society	185.00
Cowlitz County Society	250.00
King County Society	4,244.00
Kitsap County Society	215.00
Klickitat County Society	70.00
Pierce County Society	387.50
Snohomish County Society	800.00
Spokane County Society	1,248.31
Walla Walla County Society	172.50
Whatcom County Society	290.00
Whitman County Society	60.00
Total contributions	$8,187.31

Allocated as follows:		
Public Relations Committee	$2,729.11	
Public Health League	2,729.10	
General Fund	2,729.10	$8,187.31

Total contributions received to date (July 1, 1935, to June 30, 1936)		11,309.06
Allocated as follows:		
Public Relations Committee	$3,769.69	
Public Health League	3,769.68	
General Fund	3,769.69	
		$11,309.06

Constitution and By-Laws

Carroll Smith submitted a report of the new Constitution and By-Laws. These provide for an increase of seven dollars in State dues, making them $12 per year, $5 of which goes to the Public Health League, $2 to NORTHWEST MEDICINE, $5 to Washington State Medical Association.

Cardiovascular Committee

A meeting of this committee was held at the University Club in Seattle, March 15, 1936. Means of carrying out previous recommendations were considered. These were that the activities of this committee should be directed toward the education of physicians rather than of the laity.

A plan was proposed and adopted, whereby each member of the committee was to submit titles of one or more papers to be presented before the various county meetings throughout the state. The topics included practically every phase of clinical cardiology and peripheral vascular disease. It was thought that in each case reference should be made, for the purpose of instruction, to the etiologic incidence of these diseases in this state. Criteria for diagnosis, as well as the influence of race, sex, occupation and economic status, were to be emphasized. Special stress was to be laid on these facts, in light of the prophylactic possibilities in regard to the development of heart disease from rheumatic fever, and the highly significant need of proper observation and treatment of children and young adults during the period of rheumatic activity. Standardization of nomenclature was to be advocated.

Due to the fact that members of the committee reside in various parts of the state, considerable delay resulted in formulating the program. Only one meeting of the committee was possible, and its activities constituted for the most part the formulation of plans for the future, as already indicated. At the request of several county societies, informal discussions on cardiovascular disease were made by members of the committee.

One of the members conferred with Dr. Marvin, Executive Secretary of the American Heart Association in New York. Many valuable suggestions were obtained, as well as willingness to cooperate in dissemination of education data. Through the cooperation of this organization and the American Tuberculosis Association, a wide distribution throughout the state of "Modern Concepts of Cardiovascular Disease" was arranged. These very interesting and instructive pamphlets are now available to all physicians on request to the Washington State Tuberculosis Association, Seattle.

The committee recommends the further execution of the plans, and the presentation of papers of general interest on cardiovascular subjects before the various county societies at their meetings.

John M. Blackford,
Chairman

Committee on Mental Hygiene

Committee on Mental Hygiene has not had occasion to have any active meetings during the year. Only one matter of local importance was brought before the committee and it was so complicated that no action was taken. The matter in point was an inquiry from the city of Spokane relative to the activities of Washington State Association for Mental Hygiene for the work being done in mental hygiene in the Child Guidance Clinic. This incident in itself is not of importance, except that it throws a light on a very complicated and perhaps unnecessary situation. For many years the Committee on Mental Hygiene has carried on the work that came before it in a most efficient manner.

Some years ago a society consisting of both doctors and laymen was organized and eventually it became a part of the National Mental Hygiene Association. This organization in Washington employs a paid secretary who handles practically all the work and reports at the annual meeting about the activities during the year. She is aided in this work by an executive committee of the organization. This is patterned after the national set-up and after all is probably the right organization to carry on such work. We might term this the "professional activity" in mental hygiene in the state of Washington.

Recently the State has gone in for a social service department and under this comes a department for mental hygiene and child guidance work. Presumably the two organizations work hand in hand. The state organization might be classified as a "political organization" dealing with mental hygiene.

The University of Washington has in the Bailey-Babette-Gatzert Foundation a department of child guidance under the direction of two very capable psychologists. This might be classifiied as the "educational" section of mental hygiene.

Then, of course, we have our committee which nominally represents organized medicine. This makes four different organizations which have to do basically with mental hygiene. Naturally from time to time there will be conflicts of authority. However, nothing serious will develop.

The question is whether or not we should continue our committee representing organized medicine. It has no local standing with the state and it has no professional standing with the lay organization and is quite unnecessary from the educational department at the University of Washington. It would seem, therefore, that this committee might well be abolished.

There was no other important business brought before the committee.

George W. Swift,
Chairman

Maternal Welfare Committee

Because of a general apathy on the part of physician and laity alike there are many phases of preventive medicine applicable to maternal health problems which would appear to be undeveloped. It has been urged upon this committee to make investigations of the programs outlined for this work and to make recommendations.

The program as advanced by the State Department of Health seems to have the approval of the National Committee on Maternal Welfare, and as long as it is maintained with a sincere purpose, seems to merit our endorsement as the best plan offered. Briefly this program consists of:

1. Establishing demonstration areas in rural localities to provide model and adequate instructions to expectant mothers. An obstetrician will conduct these clinics at definite intervals and be paid by the Department of Health.

2. Opportunity for private registered nurses to join classes in obstetric nursing to make available a trained pay-service to the obstetrician in rural areas.

3. Arrangements for conferences between the division chief and staff nurses with field nurses for the purpose of obtaining reports on the distribution of literature on maternal hygiene and teaching methods of procedure in maternal care.

4. The nursing service will also hold classes and demonstrations available to all expectant mothers but with the approval of the attending physician where a private obstetrician is employed.

5. A dentist, a nutritionist and such other workers as may be necessary are to be provided in order to properly carry out this work.

The foregoing deals mostly with the laity. In order to facilitate the carrying out of any such program and to better amplify its operation professionally, the committee thinks that an organization of obstetricians could better select subjects for lectures and demonstrations and supply lists for capable men to present them. They might much better coordinate their efforts and thus be better able to influence and supervise development of national, state and local plans for maternal welfare.

Inquiry reveals that obstetric societies exist at present in both King and Pierce counties, but neither of which have been active for several years. Inquiry also reveals many of the obstetricians of this state are eager for such a society and progress is being made to form an organization to further the ideals of obstetric practice and to work in conjunction with the State Association in meeting its problems as far as education, legislation and appropriations are concerned.

Since a new committee is appointed each year with the change of state administration, it is obviously difficult for the National Committee to work with us. Consequently, it apparently finds the State Department of Health the most suitable for development of their program. Because of this we suggest to the House of Delegates that a standing committee of eight be appointed according to the following plan: two to be appointed for four years, two for three years, two for two years, two for one year.

Each year the incoming administration shall appoint two for a four-year term. By such an arrangement we could best combat and avert any tendency on the part of the State Department to lead us into state medicine.

The task of this committee has been quite difficult, but we hope to have made some progress, and to impress our associates with the importance of the subjects with which it is concerned.

Richard S. Mitchell,
Chairman

Social Hygiene Committee

The initial work of the committee was putting on a social hygiene exhibit, including some venereal disease material, at the Puyallup Fair. An attendant was in charge to answer questions. This exhibit was later incorporated into the traveling health exhibit which went all over the state. A survey of the incidence of syphilis was made and is found to still be decreasing, with the greatest incidence among those who were enjoying the greatest measure of social security, such as those in the state prisons and insane hospitals.

We assisted many and various agencies by furnishing them with social hygiene material which they could use before their groups, thereby seeing that such information as was given be fairly truthful and not inimical to our own interests. The social hygiene chairman of the state P.-T. A. made unlimited use of this, it going before approximately forty of her groups.

We furnished one social hygiene and one venereal disease radio broadcast which was put on the air by the State Department of Health, and the two radio broadcasts on social hygiene were put on the air by the P.-T. A. speaker The announcer credited us as the source.

We became socially democratic by furnishing a series of ten weekly illustrated health talks in a semicommunists' school. This greatly improved the general regard for the physicians among those people.

Two series of illustrated lectures, five each quarter, were given to the students in the University of Washington School of Nursing and four special lectures to the supervisor students. Lectures covering the subjects of social hygiene and venereal disease control were by the chairman. The bases of these lectures were to acquaint the student nurses with such information as they could give to the public and to better fit them in caring for venereal patients as sick persons and not as sinners. A health program for four Sunday evening religious meetings was furnished.

Assistance was given to the Pacific Protective Society in formulating a plan for enlarging their activities towards removing from social circulation venereally infected or illegitimately pregnant girls. The subject of birth control was officially tabu in spite of considerable pressure for an opinion. It might be advisable to learn more regarding the proponents' claims as a prevention to our possibly being caught napping by some lay organization.

Questionnaires were sent out asking specific recommendations regarding a venereal disease control program for the State Health Department, with indifferent response. The evolved control plan upon an epidemiologic basis was more the work of older men who had in years past been active in society's affairs, rather than the active men of today. It was adapted by the State Department of Health. The basic principles aimed at keeping venereal practice in the hands of private physicians and eliminating clinics. It considered all public clinics but a step nearer to state medicine. This policy is now in danger of being reversed by the department, as there is now considerable pressure to establish more clinics and enlarge existing ones, with the physicians being entirely left out of consideration.

We formed some very definite conclusions regarding the failure of any accomplishments by mixing public health and politics, particularly in regard to venereal disease control. The system of medical inspection of prostitutes as a means of reducing venereal disease is condemned. The conclusion is that such inspection protects those frequenting the bawdy houses and sends diseased individuals out to infect those who would never think of associating with such women in their natural environment.

A suggestion is that this social hygiene committee be either abolished or combined with some other, as there are too few willing workers for this kind of committee work. It puts too much on the chairman with committee activities being more the result of one man's ideas, rather than being representative of the whole society.

W. Ray Jones,
Chairman

Tuberculosis Committee

As Chairman of the Tuberculosis Committee of Washington State Medical Association, I wish to give a brief report of the activities of our Committee.

We have attempted to carry on an intensive campaign against tuberculosis along three main channels: (1) the medical profession, (2) tuberculosis surveys in our schools and colleges, (3) contacting lay people, high schools, parent-teachers associations, clubs and other organizations.

THE MEDICAL PROFESSION

We have practically completed presenting a program on tuberculosis before every county medical society in the state. In these meetings, conducted by committee members, we have stressed the value of early diagnosis and adequate treatment, endeavoring to make every physician, regardless of his line of work, more tuberculosis conscious. In discussing diagnosis we presented an outline dividing this subject into four main parts: history, physical examination, laboratory work and roentgen study.

History: A carefully taken history is of vital importance, since at times it alone practically makes the diagnosis. In taking the history we must always bear in mind that hemoptysis and pleurisy usually mean tuberculosis and, if no other cause can be found for these symptoms, the case should be treated as tuberculosis.

Physical examination: The most important procedure in the physical examination is the use of the auscultatory cough to bring out rales. The finding of the rales in the upper part of the lung is a most important physical sign in tuberculosis and, since the diagnosis of this disease often depends upon finding rales in this area, every effort should be made to elicit them. Frequently the lungs will sound normal under ordinary or even deep breathing, whereas by having the patient exhale and cough, rales will be demonstrated. It is really astonishing how many cases are missed by some of our diagnosticians because they do not always use this cough.

Laboratory work: The Mantoux, or tuberculin skin test, and sputum examination are the two important procedures in laboratory work. The Mantoux test is becoming of greater value each year as the frequency of tuberculous infection lessens. If the test is properly done and interpreted, a negative reaction rules out tuberculosis. A positive tells us tuberculous infection is present and then one must go down the line to determine if there is any activity or tuberculous disease. In using the Mantoux test, employing O.T. tuberculin, one should start with no smaller dilution than 1-1000 or 1/10 mgm. If there is no reaction in forty-eight hours the test should be repeated, using a dilution of 1-100 or 1 mgm. The reaction should never be read before forty-eight hours, since false reactions are frequently seen prior to this time. There are still too many mistakes made in the use of this test, due to old solution, improper strength, wrong time of reading and misinterpretation. The committee is pleased to see a more generalized use of this test as a routine office practice.

Sputum examinations: Every physician should make it a part of his routine to make sputum examinations on all patients who have coughed for six weeks or more. If this procedure were followed, many cases would be discovered in a stage much more favorable for treatment.

Roentgen study: In every case where there is grave suspicion of tuberculosis, adequate roentgen study must be done before a definite diagnosis is made. Our main reliance must not depend upon the fluoroscope, but on the roentgen film. Even the roentgenologist with vast experience in tuberculosis work would at times pass up early cases of tuberculosis, if he were to depend upon the fluoroscopic examination. If this is true, then a physician with less experience will be misled by fluoroscopy and should always make a roentgen film.

In our talks we stated a chest film must be properly taken to be of value. A poor film is worse than none, since it frequently leads to false interpretations. There are still many doctors in our state who apparently do not know what a good chest film is. Our committee has reviewed hundreds of films from all over the state. Quite a number of these revealed movement, overexposure or underexposure, some error in the taking or developing of the film which made it impossible to read. Many of these men doing unsatisfactory roentgen work do not realize that practically any kind of a roentgen machine can be set up to make good roentgenograms of the lungs. The committee has not only stressed the importance of good films before the county medical societies but by personal contact with physicians throughout the state has helped a large number of these men to make better films and do better interpretations.

Conclusion of diagnosis: The physician should not try to make a diagnosis from only these four parts of the examination, as for instance the roentgen film, but by carefully correlating the knowledge derived from a carefully taken history, physical examination, laboratory work and roentgen study, he will make few mistakes in his chest diagnoses. We are pleased to find a steady improvement in the diagnoses of chest diseases by physicians throughout the state.

Treatment: The physician must help his patient plan his course of treatment. If possible every patient should spend some time in a sanatorium because of the marked advantages it has to offer. There his case can be thoroughly worked out and adequate treatment started. He is free from worries of home or shop and has no fear of endangering others. The knowledge he gathers regarding tuberculosis even from a short stay in an institution will help him to cooperate much more intelligently with his family physician.

It is almost needless to say to a group of modern physicians that climate plays no part in the treatment of tuberculosis.

Our committee discussed treatment under two headings: General Care and Collapse Therapy.

General care: Consists of rest, food and fresh air. Experience has shown these must be properly supervised. Simply telling the patient to go home, sleep with his windows open, rest and eat all he can, never produces satisfactory results. While our main pillars in the treatment of tuberculosis are still supervised rest, food and fresh air, 75 per cent of tuberculous patients as first seen by the physician can be markedly benefited by collapse therapy. In fact, many patients' only chance for recovery is through the means of these more recent developments in the treatment of tuberculosis. Today every case, regardless of the stage of the disease, should be carefully studied to see if some form of collapse therapy is indicated.

Collapse therapy: Pneumothorax is the most frequently used form of collapse. It is generally applied where the disease is chiefly in one lung, but in the last few years many cases of bilateral involvement have been brought under control by the use of bilateral pneumothorax.

Phrenectomy: There is a general tendency towards doing fewer permanent and more temporary phrenectomies.

Thoracoplasty: By the careful selection of cases, and the work done by men experienced in thoracic surgery, the immediate mortality has been brought down to 2 per cent. This type of treatment has restored a larger number of people to comparative good health who otherwise would have ultimately succumbed to the disease. But in our collapse therapy we must not fail to recognize that collapsing the lung, whether by pneumothorax, phrenectomy or thoracoplasty, does not heal the tuberculosis as the removal of a bad appendix cures appendicitis. It simply places the lung in a position where healing can much more readily take place. Therefore, in conjunction with collapse therapy we must carry on with our general care-supervised rest, food and fresh air, if we are to secure good results. Collapse therapy has revolutionized the treatment of tuberculosis. It has restored thousands of individuals to health, removing them from being a menace to their families and communities, and in doing so has prevented many more from being infected and ultimately developing tuberculosis. Nevertheless, we hope to see the day when the campaign against tuberculosis has so aroused the professional and general public that the disease will be diagnosed much earlier and the need for such extensive collapse therapy lessened.

TUBERCULOSIS SURVEYS IN SCHOOLS AND COLLEGES

The committee, with the aid of local medical societies and the State Tuberculosis Association, has carried on a number of surveys in our schools and colleges, endeavoring to find cases of tuberculosis and creating a greater interest in this subject among both the students and faculty members. We are endeavoring to have every college in our state incorporate in its health activities a Mantoux test and roentgen program.

CONTACTING LAY PEOPLE

If we are to control tuberculosis, we must go beyond the medical profession and colleges and into homes, grade schools and high schools. Therefore, the committee, with the aid of illustrated lantern slides, has presented vital information regarding tuberculosis to numerous parent-teachers associations, churches, clubs, and to over 12,000 high school students scattered throughout our state. We feel this has been one of the most important parts of the committee's activities, stressing to parents and children the importance of good health habits, especially as they apply to children infected by the tubercle bacillus, in order that they may not later develop the disease.

In conclusion, in behalf of the committee and the Washington Tuberculosis Association I wish to express my gratitude to our President, D. F. Bice, for the fine help and inspiration he has given us, and to the various county medical societies for their cooperation.

John E. Nelson, *Chairman.*

Committee on Drug Addiction

Your Committee on Drug Addiction has not had a very active program to report during the past year. We have, however, held meetings with and in cooperation with a similar committee from the State Pharmaceutical Association; and have had numerous conferences in regard to proposed legislation which will undoubtedly come up at the next session of the legislature. These have to do with two rather important questions.

The first is whether the Medical Association should support proposed legislation dealing with the prescribing of barbital and its derivatives. Such legislation is on the statute books of sixteen states, all of the Provinces of Canada, and also is in force in the British Isles. It would permit any of the barbital group to be sold only on prescription of a licensed physician. This would prevent self-medication, counter prescribing, and other abuses which have become sadly prevalent since the rather wide-spread development in chemical manufacture, and the active propaganda that is indulged in by many of the pharmaceutical houses in support of their particular brands of hypnotic. In this matter we have the full cooperation and support of the Pharmaceutical Association, and your committee recommends that we support the measure.

The second matter under consideration was that pertaining to the itinerant peddlers of drugs and nostrums who canvas from house to house, especially in the rural districts of the states. The majority of the states have legislation covering this practice, but since this state has none, it has become the dumping ground of very large numbers of these irresponsible people. It is the purpose of the State Pharmaceutical Association to support legislation aimed at eliminating this abuse, and your committee recommends that the Medical Association give them their support in the matter.

Other matters have been considered but we do not feel that any of them are of sufficient importance to be made a part of this report at this time.

James E. Hunter, *Chairman.*

Neoplastic Committee

In January, 1933, this committee formulated a five-year program which was accepted by the Board of Trustees of Washington State Medical Association as presented. The plan consisted of two major parts:

1. The preparation of articles on angioma, carcinoma and sarcoma of various parts of the body, emphasizing early diagnosis, biopsy and selection of radium, roentgen ray or surgery as therapy. These papers to be distributed to the state members or published in Northwest Medicine.
2. Upon completion of the above, the next step would be to engage the services of the American Society for the Control of Cancer to conduct a state-wide educational campaign for the public. This organization is well equipped to perform this task. They have done it for other state medical associations, and are willing to repeat it here at no charge to us.

In 1933 the preliminary report of the committee was generously paid for by the Public Health League. It contained the completed subject of "Angioma," also articles on "Cancer of the Breast" and "Cancer of the Uterus and Ovaries."

Dale Martin of Tacoma died since our first report. His untimely death created a vacancy on the committee, and Carroll Smith, President of Washington State Medical Association, filled his vacancy by appointing Alfred Balle of Seattle.

Our 1934 report included the subjects of "Radiology," "Genitourinary Tumors," "Tumors of the Eyeball," "Tumors of the Nose and Throat" and "Tumors of Bone, Including the Jaw."

James D. Edgar of Spokane and Earl I. L. Cilley of Bellingham were added to the personnel of the committee in 1935.

The cost of the 1935 report was paid for by Washington State Medical Association and American Society for the Control of Cancer jointly, each paying fifty per cent of the expenses. The report included the following subjects: "Cancer of the Skin," "Cancer of the Lip," "Intraoral Cancer," "Therapy of the Neck for Lip and Intraoral Cancer," "Cancer of the Gastrointestinal Tract." "Sarcoma of Soft Tissues," "Melanoma" and "Grading of Tumors." Copies of the above reports, 1933, 1934 and 1935, were either presented to members at the state meeting or mailed to their addresses.

The 1935 report represented the final step toward the completion of the first portion of the five-year program started in 1933.

The committee proceeded this year, 1936, with a second phase of our original program, namely, a state-wide educational program for the public. In this we were assisted by the American Society for the Control of Cancer. Clarence C. Little, managing director of that organization, was sent to us at their expense to speak before the public in Spokane, Tacoma and Seattle. In addition, the county societies throughout the state were asked to arrange for an educational meeting for the public on cancer in each of their communities. For this purpose, the American Society for the Control of Cancer sent each county president prepared literature on the subject which any physician could use in a public speech. They also loaned two projectoscopes and films, accompanied by a script to be read. One of these was scheduled throughout the eastern part of the state by James D. Edgar and the other in the western part by Earl I. L. Cilley. For various reasons all the proposed meetings could not be held, but there were twelve meetings, and four thousand people attended meetings of this sort under our auspices in this state.

The Finance Committee of Washington State Medical Association gave us $100 for this year's work, of which we are returning $76.

The five-year program which we started was completed in four years, but there is still a great deal that can be and should be done. The committee feels that whatever has been accomplished by it was dependent upon the fact that the same personnel was permitted to continue as a committee under the administrations of Alexander H. Peacock, Carroll Smith, Nathan Thompson and D. F. Bice. It is the belief of the committee that the personnel should remain unchanged with the exception that one member retire each year and the vacancy be filled by the incoming President of the Association, and that the committee be permitted to select its own chairman.

Donald V. Trueblood, *Chairman.*

Committee on Necrology

Whereas, twenty-four of our members have passed on since the 1935 meeting of this association, therefore be it

Resolved, that the House of Delegates of Washington State Medical Association recognize the demise of these former fellow members and instruct the Secretary to inscribe with honor and regret the following names upon the records of the association; that the Secretary write each family a letter of condolence, specifying this is the action of the Washington State Medical Association. These are the names of our deceased members:

F. L. Neely, Shelton, age 50, died September 12, 1935
P. Sweet, Centralia, age 56, died October 20, 1935
R. H. Campbell, Vader, age 66, died October 22, 1935
F. Falk, Seattle, age 62, died November 28, 1935
M. Seagrave, Seattle, age 52, died November 10, 1935
K. W. Ruble, Seattle, age 40, died December 31, 1935
F. B. Whiting, Seattle, age 70, died January 15, 1936
E. T. Hanley, Seattle, age 60, died January 23, 1936
L. R. Markley, Bellingham, age 77, died February 12, 1936
G. C. Wagner, Tacoma, age 76, died February 25, 1936
C. H. Thomson, Seattle, age 62, died March 7, 1936
J. L. Paine, Olympia, age 49, died March 18, 1936

L. Walter, Spokane, age 35, died March 25, 1936
C. E. Kjos, Mt. Vernon, age 37, died March 26, 1936
M. J. Maguire, Yakima, age 53, died April 13, 1936
M. Clements, Seattle, age 52, died April 26, 1936
E. L. Bickford, Mercer Island, age 70, died April 27, 1936
W. L. Hall, Seattle, age 68, died May 29, 1936
J. T. Mason, Seattle, age 54, died June 20, 1936
W. G. Gabie, Seattle, age 60, died June 25, 1936
L. P. McCalla, Bellingham, age 70, died July 17, 1936
J. R. Neely, Spokane, age 77, died July 31, 1936
T. E. Hoxsey, Spokane, age 63, died August 28, 1936
J. G. Byrne, Seattle, age 65, died August 28, 1936

W. D. READ, *Chairman.*

RESOLUTIONS

The following resolutions were offered and accepted:

Presented by J. H. O'Shea of Spokane.

Resolved, that Washington State Medical Association support the acts of the House of Delegates of American Medical Association at the recent meeting in Kansas City, these to read: "Any hospital in the State of Washington which shall give lesser rates other than regular rates to any individual groups, clinics, or hospital associations shall be ineligible for approval for approved internship. Such institutions shall be refused classification class A." The Resolutions Committee recommends the adoption of this resolution.

Presented by J. H. O'Shea of Spokane.

Whereas, under the present system of obtaining contracts for the care of employees, medically and surgically, there is often lack of free competition that is supposed to be inherent in the practice of medicine and the employee does not always have a chance for free expression as to the choice of those who shall care for him if injured or sick, therefore be it

Resolved, that the Legislative Committee of Washington State Medical Association be hereby instructed to prepare in conjunction with the State Industrial Insurance Department an amendment to the Industrial Insurance Act which shall provide for secret ballot of the men in all cases where two or more contracts are offered.

Presented by A. P. Duryee of Everett.

Resolved, that each county Society will elect a committee of three to serve permanently as a malpractice committee for their respective county societies.

SECOND SESSION

Wednesday, September 2, 8:45 a.m.

The Secretary called the roll and a quorum was found present.

The following committees were appointed as Standing Committees:

1. Arrangements.
2. Board of Governors of the Defense Fund.
3. Program.
4. Finance.
5. Legislative Committee.
6. Journal NORTHWEST MEDICINE.

Election of Officers

The following officers were elected for the ensuing year, all of whom comprise the

BOARD OF TRUSTEES

President—Arthur C. Crookall, Seattle.
President-Elect—J. Reid Morrison, Bellingham.
Vice-President—Arthur Betts, Spokane.
Secretary-Treasurer—V. W. Spickard, Seattle.
Assistant Secretary-Treasurer—A. J. Bowles, Seattle.

D. F. Bice, Yakima; C. W. Knudson, Seattle; E. C. Leach, Arlington; R. D. Forbes, Seattle; W. D. Read, Tacoma; G. H. Anderson, Spokane; J. E. Bittner, Jr., Yakima; Carroll L. Smith, Spokane; H. E. Rhodehamel, Spokane.

BOARD OF GOVERNORS

H. D. Dudley, Seattle, First District.
J. R. Morrison, Bellingham, Second District.
J. B. Blair, Vancouver, Third District.
G. W. Cornett, Yakima, Fourth District.
J. H. O'Shea, Spokane, Fifth District.
W. D. Read, Tacoma, Sixth District.

FINANCE COMMITTEE

C. W. Sharples, Seattle. D. H. Lewis, Spokane.
A. T. Wanamaker, Seattle.

JOURNAL TRUSTEES

H. G. Willard, Tacoma. J. M. Bowers, Seattle.
R. N. Hamblen, Spokane.

DELEGATES TO THE A. M. A.

J. H. O'Shea, Spokane. R. L. Zech, Seattle.

Alternates

W. B. Penney, Tacoma. A. E. Gerhardt, Wenatchee.

BOARD OF GOVERNORS DEFENSE FUND

The second annual meeting of the Board of Governors of the Defense Fund of Washington State Medical Association was held in Yakima, September 2, 1936. The Governor from each district was present.

Matters of general business pertaining to the activities of the Defense Fund were discussed. The report of the revision of the rules and regulations of the Defense Fund as approved by the Board of Trustees at a special meeting, May 25, 1936, in Yakima, was read. There was a general discussion and a committee was appointed to make certain studies and report back to the Board of Governors at its next meeting.

On motion of V. W. Spickard it was adopted that a vote of thanks be extended to D. F. Bice and the members of Yakima County Medical Society for an excellent meeting and their hospitality.

Retiring President D. F. Bice introduced Arthur Crookall of Seattle as the new President who invited the Association to meet in Seattle next year, which invitation was accepted. Meeting adjourned.

V. W. SPICKARD, *Secretary.*

WOMAN'S AUXILIARY

The fifth Annual Convention of the Woman's Auxiliary to Washington State Medical Association, held in Yakima Aug. 31-Sept. 2, was a gratifying success. Each year sees an increase in attendance, smooth functioning of the organization and enthusiasm of the members over its accomplishments. The preconvention board meeting was held at the home of Mrs. D. F. Bice, Recording Secretary, with state officers and Committee Chairman in attendance.

All general meetings were held at the Woman's Century Club, the first being at 9 a.m., Tuesday, September 1. The meeting was called by the president, Mrs. J. B. Blair, who gave her report for the year and made recommendations for the improvement of the organization. A Nominating Committee was appointed and reports were made by the state officers, chairmen of standing committees and representatives of the various county auxiliaries. Dr. Frank Clancy, Director of the Bureau of Investigation of the A.M.A., lectured on the dangers incurred by the use of so-called beauty aids and reducing agents, accompanying his talk with slides showing the ravages of nationally advertised products.

The second general session convened at 9 a.m., Wednesday. Recommendations of vice-presidents and reports of county presidents were read prior to the election of officers which resulted in the following list:

President	Mrs. D. H. Bell, Tacoma
Junior Past-President	Mrs. J. B. Blair, Vancouver
President-Elect	Mrs. M. T. Mac Avelea, Mt. Vernon
First Vice-President	Mrs. J. P. Shult, Bremerton
Second Vice-President	Mrs. W. L. Ross, Jr., Yakima
Third Vice-President	Mrs. James T. Rooks, Walla Walla
Fourth Vice-President	Mrs. McCrea Smith, Bellingham
Fifth Vice-President	Mrs. H. D. Fritz, Cathlamet
Sixth Vice-President	Mrs. A. M. Skarperud, Aberdeen
Recording Secretary	Mrs. Carrol Smith, Spokane
Corresponding Secretary	Mrs. Scott Jones, Tacoma
Treasurer	Mrs. Chauncey Jones, Everett

The Washington Auxiliary Exhibit, which Mrs. Mitchell Langworthy of Spokane prepared with great artistry and care for the National Convention, was on display in the club rooms and elicited great praise. Mrs. Horace Whitacre of Tacoma gave a very comprehensive report of the national convention held in Kansas City in June. Following the Wednesday luncheon at the Country Club, the Walla Walla Valley Auxiliary was accorded first place on the Roll of Honor for outstanding achievements and Pierce was given honorable mention.

Social features of the Women's Convention were the daily luncheons followed by bridge or sightseeing, the garden supper at the country home of Mrs. C. A. Riemcke and the dinner dance at the Country Club, at which the Medical Association were hosts. All were delightful and were manifestly the result of much thought and care for the enjoyment of the auxiliary guests. The state organization deeply appreciates the courtesy of the Yakima Auxiliary for their charming entertainment.

We are deeply grateful to Mrs. Blair, our gracious retiring president, for her tireless and efficient administration and look forward to a successful promotion of the projects of our esteemed president Mrs. Bell. All county units are going into action for a most interesting and vital year. This being another legislative year, we must never lose an opportunity to influence public opinion in the health interests of our state against the pernicious health legislation which again raises its ugly threat against the profession we revere.

Mrs. George E. Hoxsey,
Press and Publicity.

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

A regular meeting of King County Medical Society was held at the Auditorium of Medical-Dental Bldg., Seattle, October 7, President Forbes presiding. Minutes of the previous meeting were read and approved.

Application of Clifford Senecal for membership was read for the first time. The names of seven applicants were read for the second time. Proposed amendments to the by-laws were read for the second time. V. W. Spickard made a motion to strike out the provision for semiannual payment of dues. David Metheny offered an amendment to these amendments, specifying that $10 of the increased dues from each member would be for maintenance of the medical library. V. W. Spickard, secretary of Washington State Medical Association, read a report of the annual meeting at Yakima. Homer D. Dudley reported the action of the House of Delegates regarding the Medical Defense Fund. President Forbes called attention to several special meetings that were to be held.

The first paper of the evening was read by Howard B. Kellogg on "Regional Ileitis." After historical review he stated that this is a clinical entity, involving the terminal ileum but may affect any portion of the small intestine. Three clinical cases were reported, operated upon under the mistaken diagnosis of appendicitis. Discussion was by John Duncan, R. P. Mullen and David Metheny.

The second paper was presented by D. V. Trueblood, being the five-year report of the Tumor Clinic at King County Hospital with an exhibit of statistical charts and lantern slides of various kinds of cancer treated. The paper was discussed by T. T. Dawson and C. R. Jensen.

PIERCE COUNTY MEDICAL SOCIETY

Pres., A. W. Howe; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, on October 13, with A. W. Howe in the chair. Minutes of the previous meeting were read and approved.

H. S. Judd, R. S. Garnett and H. H. Dutton were elected to membership.

H. J. Whitacre reported as Chairman of the Committee on Exhibits at the Western Washington Fair and presented a statement of expenses amounting to $31.05.

C. F. Engels spoke on behalf of Dr. Cameron's candidacy as State Representative in the 26th District, also in behalf of Mr. Dashiel and Mr. Fryar, candidates for the State Legislature.

G. H. Smith, Director of Health in the Tacoma Public Schools, gave an outline of the projected Mantoux test to be carried out in the schools. Dr. Creswell explained the procedure to be followed in the follow-up work on the reactors, which will be taken care of by the Tacoma Public Health Nursing Association. J. F. Steele moved that Pierce County Medical Society go on record as approving this program. Motion carried.

C. E. Dolman, Bacteriologist at the University of British Columbia, then spoke on "Staphylococcus Toxoid," supplemented by case reports.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., J. C. Lyman; Secty., C. J. Johanneson

The first fall meeting of Walla Walla Valley Medical Society was held at the Grand Hotel, Walla Walla, October 8. The meeting was preceded by a dinner with forty-five physicians present.

The following officers were elected to serve during the year 1936-1937:

President, A. E. Lange, Walla Walla; Vice-President, W. Frick, Dayton; Secretary-Treasurer, Sam R. Page, Walla Walla.

These officers with the addition of Frank C. Robinson and Roscoe W. Smith compose the executive committee.

J. T. Rooks was elected delegate to the annual meeting of Washington State Medical Association, with V. G. Backman of Pasco as alternate.

J. E. Vanderpool, county-city health officer who has served fifteen consecutive years as treasurer of the society, resigned and it was voted to combine that office with the secretaryship. Members of the society gave Dr. Vanderpool a standing vote of appreciation for his many years of service, and expressed regret at his resignation.

The society voted to cooperate with the state executive committee by increasing the dues from $10 to $17.

W. Ray Jones of Seattle, consultant with the State Department of Health, gave a very valuable address on "The State Venereal Disease Control Program As It Affects the Private Practitioner."

Henry Copeland and C. N. Eaton, candidates for the state senate and house of representatives respectively, discussed their views relative to the medical issues to be faced by the legislature.

E. J. Rhoades, delegate to the last meeting of the State Association at Yakima in August, gave a careful report of the convention.

Members of the Auxiliary met simultaneously also at the Grand. Mrs. Frick of Dayton was in charge of the program.

The next meeting of the society will be held on November 12, with Otis F. Akin of Portland, Oregon, as the speaker. His topic will be "Foot Pains, their Cause and Treatment from the General Practitioner's Viewpoint." He will also discuss "Fracture of the Neck of the Femur."

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull

The regular monthly meeting of the Yakima County Medical Society was held at Commercial Hotel, Yakima, October 12. The usual dinner preceded the meeting. Twenty-five members and one visiting physician were present.

The president made a special plea for supporting the candidacy of our member D. F. Bice for election to the state senate. A committee was appointed to have suitable printed matter prepared to be inclosed in the monthly statements and put on the tables of the various reception rooms endorsing Dr. Bice's candidacy.

The scientific program was as follows:

O. A. Nelson of Seattle: "Cervical Infections in Relation to Urinary Tract Infections and Symptoms."

D. H. Nickson of Seattle: "Pathology of Cervical Disease." Discussion followed by Drs. Brush, Cocklin, Coglon, Bice and Ross.

John Wirth of Seattle: "Treatment of Carcinoma of the Cervix." Discussion followed by Drs. Cornett, Shirey, O. A. Nelson and Pinckard.

Research in Sinus Disease. University of Oregon Medical School is in receipt of announcement from the Council of the American Academy of Ophthalmology and Otolaryngology, which met recently in New York City, to the effect that the Academy will continue the maintenance of research in the problems of sinus disease. This work has been carried on by the departments of Anatomy and Otolaryngology in the Medical School under the direction of Professors Olof Larsell and Ralph A. Fenton. The Academy granted last year for this purpose $250, and in light of the presentation of the results at the meeting in New York, the appropriation was advanced to $400 for the current year. The studies are made with reference to the relation between sinus infections and diseases of the chest.

NORTH PACIFIC ORTHOPEDIC SOCIETY

North Pacific Orthopedic Society held its annual meeting in Spokane September 26. Clinics were held at Sacred Heart Hospital in the morning and papers by certain members were read in the afternoon.

Next year's meeting will be held in Seattle. Following the custom of electing officers from the city where the meeting is held, the following Seattle men were elected: President, Joe C. Brugman; vice-president, Roger Anderson; secretary-treasurer, Edward LeCocq.

STATE DEPARTMENTS

ANNUAL MEETING NOTES

Portland, Ore., Oct. 22, 1936.

The Sixty-Second Annual Meeting of Oregon State Medical Society, held October 8-10 at The Dalles, was noteworthy in many ways. The program was of unusually high type. It was quite fitting that the Society met at The Dalles and particularly in the Wasco County Court House. This court house is the second successor of the oldest court house west of the Cascades, and traditions, therefore, go back many years and cover many outstanding and important events in the history of the Oregon country. The Dalles has since its founding been an important trading station between the coast and the interior. Judge Wilson, in whose court room the meetings were held, graciously welcomed the Society and gave a short resume of the history of Wasco county, especially its medical aspects.

The meeting was also outstanding on account of the presence of Olin West, Secretary of the American Medical Association. Dr. West's presence would grace any gathering. He spoke to the House of Delegates and was also the principal speaker at the banquet. These talks, as well as private conversations with many of our members, did much to clear up questions in regard to the attitude of the A.M.A. on various matters before our Society. The Oregon Society is to be congratulated on the notables of our national society who have been in attendance at our annual meetings during the last several years. It is a pleasure to meet these impressive personalities and to learn first-handedly of their earnest desire to help the practicing doctor and to know of the many activities which are in operation for the improvement of medical service.

The papers were all excellent and were worthy of an audience several times that which was recorded. The attendance, however, was quite good for a meeting outside of Portland. Many more members could have attended to advantage to themselves for the papers covered a wide field, and there probably is no physician but could have gained some points of value from hearing them. Clifford Sweet of Oakland, California, C. E. Dolman of Vancouver, B.C., and Joseph Tamura of Cincinnati were guests of the Society, and their valuable papers were well received. It is always interesting as well as inspiring to meet personally the guests of the Society and this is accomplished better at small meetings than at large ones. These men are all very fine gentlemen and knowing them is indeed a pleasure. The papers by the local men were all of the usual high type, and without exception were well prepared and splendidly delivered.

The Alumni Association of the University of Oregon Medical School met at a luncheon at St. Paul's Episcopal Church on Thursday noon. Alfred Kinney, the first and fiftieth president of the Oregon State Medical Society, was warmly welcomed upon his introduction. Karl Meyer, a research worker from San Francisco, also talked.

Clarence A. Smith, editor of Northwest Medicine, was a welcome guest for three days. We are always pleased to meet our genial and efficient editor at our gatherings. Many expressions of thanks and appreciation for Northwest Medicine were extended to Dr. Smith.

For the business-like manner in which the meetings of the House of Delegates were carried on, without lost motion, a vote of appreciation is due to President George A. Massey of Klamath Falls, who presided. Every member was shown courtesy in presenting any matter which he desired but there was no dragging at any time. Dr. Massey and Vice-president W. J. Weese of Ontario, who presided alternately at the meetings, held the speakers to their time limit in a manner which was very gratifying to all. The feeling among those present was very friendly. These yearly associations of the members with each other, at which time friendships are renewed, are valuable in building up a unity of spirit amongst our confreres.

Thomas Wynne Watts, the president-elect, was inducted into office at the close of the meeting. The election of Dr. Watts a year ago was a tribute to the high esteem in which he is held by the membership. His pleasing personality, together with the energy with which he has worked for the betterment of his fellow physicians, is an outstanding example for those who will have medical organization under their guidance in the near future. His part in defeating the initiative bill to overthrow the basic science act will not soon be forgotten.

The members also showed good judgment in the selection of other officers for the coming year. The president-elect, Charles T. Sweeney of Medford, is a fine gentleman whom it is a delight to meet. He is energetic and capable. In his hands the affairs of our organization will also be in safe keeping. Vice-president Charles E. Sears, has always been a gladiator with sword ever unsheathed, fighting on the front line for ethical medical practice and the upholding of the highest aims of the Society. W. F. Hollenbeck who was just elected treasurer is also a leader in the cause for better medical services.

The vote of appreciation of the Society, for the highly satisfactory manner in which he carried on the office of secretary during the past year, was the reelection of Morris L. Bridgeman for a second term.

A vote of confidence, his reelection, was also given to John H. Fitzgibbon for the able and efficient manner in which he represented the Oregon Society in the House of Delegates at the annual meeting of the A.M.A. in Kansas City last May. J. Guy Strohm was again elected alternate. Approval was also expressed for the work of Ralph A. Fenton of the Board of Trustees of our national society. Goodrich C. Schauffler was reelected trustee of Northwest Medicine.

These efficient officers make up the Council of our Society. Our affairs are in good hands and the members and the public may be assured through this high type of personnel that our beloved organization will ever have in mind the highest ideals of our profession, of humanity.

It is to be regretted that there are several hundred physicians practicing in the state of Oregon who are not members of their county societies and, therefore, not members of our state society. It is hoped that during the coming year this number may be reduced to a minimum and that all desirable practitioners will be enrolled as members.

Adalbert G. Bettman,
Editor.

WASHINGTON

WORK OF STATE OFFICIALS

Seattle, Wash., October 25, 1936.

As the average physician attends to his daily and nightly routine, often accompanied as it is with worry, disappointment and a weariness of spirit, he does it with feeling of good nature and without complaint, as it is the profession to which he has devoted his life. His services on the average are fairly well paid and he has the satisfaction of doing something of value for the community in which he lives, for which he has not and does not expect any voluntary gain.

But more and more he comes in contact either directly or in his reading with changes of an economic, sociologic or political nature which are already actually interfering with him as an honest, hard working physician, or else he feels portents of ominous changes which, if fulfilled, will upset his entire life's plans. All these thoughts worry, irritate and often make him rebellious. He is worried because most of these conditions seem to him unjust; some, because he does not understand them, and some because they really are unfair. There is only one power, however, he can look to to correct and protect him from most of these evils, and because those things which exist are not immediately corrected and those that portend are not at once obliterated, he is discontented and worried. Only through an intelligent active organization can the potential power of a group be transmitted into the force that will be recognized and respected by all.

The evils we have actually with us lie often within our own ranks. Some arise naturally and honestly, but with changes in economic conditions and increase of population a condition of unfair competition is now resulting which should be adjusted. A few were born in a spirit of abnormal acquisitiveness, and finally have degenerated into a state that is beneath the dignity of a respectable commercial business, so that they have become a menace both to the public and the medical profession. Some of the things which arise without the medical profession are so palpably unfair to both the public and the profession, that so far our organization has been unable successfully to cope with them. Others are now arising which are honestly conceived by intelligent individuals and groups and which have originated without any apparent idea of financial gain as their primary motive, but which, nevertheless, will result in changes which will be harmful to the welfare of the medical profession and deleterious to the health and morals of the people as a whole. At least this has been the result in most other countries where these impractical idealistic schemes have been put in force. These false ideas are going to be the hardest for us to combat.

The physician sometimes feels that little or nothing is being done to solve his problems. He would undoubtedly have been reassured, if he could have attended the quarterly meetings of the officers of his state organization as I did today, at the Olympic Hotel in Seattle. The men came from all parts of the state and met in four sections, only getting together as a whole during the lunch hour, the work period extending from 10 a.m. until 4 p.m. These sections functioned as follows:

First, the Board of Counselors of the Defense Fund, six in number, who are working on a comprehensive plan to combat the ever increasing number of malpractice suits in this state which stands second in the United States in its ratio of such suits.

Second, the Legislative Committee of seven members who were busy passing on proposed legislation against the profession and considering the advisability of legislation in favor of the public and the profession.

Third, the Executive and Advisory Committee of the Public Health League, ten in number, who had to review the personnel of all the candidates in the state for the House and Senate for the coming election. The Public Health League, as you know, is nonpartisan and recommends men from one party here and another party there, so that it is natural at times that it is under criticism from both parties as well as from some of our own local members who do not understand the basic reasons for the recommendation in their neighborhood.

Fourth, the Board of Trustees, of which eleven were present, who had to review the routine work of the committees for the previous three months, consider general proposals and all the complaints and suggestions that come into headquarters from time to time.

In all these meetings unfinished business is carried further along, laid on the table or completed. Everything new that has arisen is considered and action when necessary is instituted. So do not add anything to your personal worries, stay with your organization whether you always agree with your officials' actions or not. Study all problems relating to your profession and if you think you have anything of value, give it to us. Do the best you can with your county society problems, for some of them do not come under the jurisdiction of your state organization.

As a test of the justice of any action you take, put yourself in the other fellow's shoes and ask yourself what your attitude then would be. Compromise and arbitration at times are valuable methods of adjustment in our rapidly changing economic set-up. We may not win today and we may not tomorrow, but remember that any cause that is honest and fair, and is backed by a continuously acting, hard working, intelligent organization is absolutely certain to win in the long run. "The mills of the Gods grind slowly, but they grind exceedingly fine."

Arthur C. Crookall,
President.

Acute Hematogenous Osteomyelitis: Analysis of Seventy-five Cases. Robert Crawford Robertson, Chattanooga, Tenn. (*Journal A. M. A.*, Oct. 10, 1936), states that in children under 2 years of age the clinical course of the disease varies widely from that of adults. The American Negro appears to be relatively immune to the disease in this section. Acute hematogenous osteomyelitis must be considered when pyrexia and localized pain on bone pressure coexist in the absence of an obvious cause. The majority of the best results were obtained by drainage of the bone within one week following the onset. The mortality rate was also highest in cases in which drainage was instituted within this period. The pathologic changes present, while usually directly proportionate to the duration of the symptoms, are influenced by many other factors.

BOOK REVIEWS

Proctology. A Treatise on the Malformation, Injuries and Diseases of the Rectum, Anus and Pelvic Colon. By Frank C. Yeomans, A.B., M.D., F.A.C.S., M.R.S.M. (Lon. Hon.). Professor of Proctology, New York Polyclinic Medical School, etc. With 421 Illustrations and 4 Colored Plates. 661 pp. $12.00. D. Appleton-Century Co., Inc., New York, London, 1936.

In this volume the author discusses the subject of proctology in its entirety. In the first chapter the anatomy and physiology of the rectum, anal canal and colon are discussed at length. Anatomic relationship, vascular supply, lymphatics and nerves are well described. He points out the importance of diagnostic methods and preparation of the patient for operation. He also discusses very well the question of anesthesia.

Under the chapter concerning hemorrhoids he discusses the complications of postoperative hemorrhage, comparing the incidence of hemorrhage following the various kinds of operations. It is very interesting to note that approximately the same percentage of postoperative hemorrhages are cited whether the operation is clamp and cautery or clamp and suture. Two types of hemorrhages are described, apparent and concealed.

The subject of pruritus ani, stressing the importance of differential diagnosis and of a complete physical and rectal examinations in order to successfully cope with this distressing condition, is systematically discussed. He treats well important proctologic conditions such as fistula, cryptitis, chronic ulcerative colitis.

Bacillery dysentery is discussed in reference to pathology and treatment. Considerable space is devoted to carcinoma of the rectum and sigmoid. The newer types of operations are well described. A very interesting chapter concludes the volume on foreign bodies in the rectum and sigmoid. The medical, surgical pathologic aspects of proctology received much consideration. For this reason this volume is highly recommended. Marshall.

The Woman Pays. By Frank Leighton Wood, M.D. 280 pp. $2.15. Zondervan Publishing House, Grand Rapids, Mich., 1936.

This volume, prepared for layman consumption, presents interesting and sensible suggestions bearing on many phases of family life. It is well known that marriage is often wrecked in its beginning in consequence of ignorance as to sexual relations. The author presents information and advice concerning these relations which might be read with profit by those contemplating matrimony. The much discussed subject of birth control is discussed in a reasonable manner. As is well known, this is practiced in some form by practically all married people. The author does not favor modern contraceptive appliances, but endorses and explains the theory recently popularized by Ogina and Knaus, by following which be believes satisfactory results may usually be obtained. He advocates an average family of four children. The child bearing period should be within the first ten years of married life, after which the most successful method of checking pregnancy is the minor operation of sterilizing the husband by severing the vas. Much space is devoted to consideration of the relatively high maternal mortality rate in our country and the well known fact that it is higher in hospital deliveries than in home confinements. This is attributed to the fact that delivery at home receives the personal attention of the obstetrician rather than leaving the patient to the attention of the nurse during most of her hospital labor. He advocates fewer hospital confinements and the return to home delivery. A plea is made for return to the family physician with restrictions on the development of specialism. The author believes this to be advantageous for the welfare of the general public.

A TEXTBOOK OF PATHOLOGY: by W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore. Sixth Edition, Entirely Reset. 1277 pages with 697 illustrations. Cloth $10.00 net. W. B. Saunders Company, Philadelphia and London, 1936.

For years this book has probably been the most widely used general textbook of pathology in America. While this has been due in part to the renown of the author as a teacher, it is the opinion of the reviewer that it is due in large part to the fact that it is one of the most readable books on any medical subject in the English language.

From the first edition in 1916, the composition of the book has been from the standpoint of disease rather than the anatomic arrangement. From the preface: "Beginning with the idea that all departures from normal health are brought about by some harmful and disturbing agency, the endeavor has been made to trace these changes back to their cause, and then to describe not only the anatomic alterations but the disturbances of function and the reaction which tends to restore the body to a normal state and even to establish protection against a recurrence of the same injury. If this, with some mention of symptoms, makes the book seem like a treatise on clinical medicine, it is only because pathology and clinical medicine are after all the same thing viewed from slightly different angles."

One might add that the writing of many of the passages, both descriptive and interpretative, can justly be described as inspired. Old friends of this book will welcome this new edition which has been entirely reset. C. R. JENSEN.

SYMPTOMS AND SIGNS IN CLINICAL MEDICINE. An Introduction to Medical Diagnosis. By E. Noble Chamberlain, M.D., M.Sc., M.R.C.P. Lecturer in Medicine, University of Liverpool, etc. With a Chapter on the Examination of Sick Children by Norman B. Capon, M.D., F.R.C.P. Lecturer on Diseases of Children, University of Liverpool. With 282 Illustrations, of which 17 are in color. 424 pp. $8.00. Wm. Wood & Co., Baltimore, 1936.

This text is designed principally for medical students, entering the phase of clinical medicine. It brings the gap between physiology and pathology of the preclinical years, and strives to apply these principles to the clinical recognition of disease. The book is divided into the common systems, gastrointestinal, respiratory, cardiovascular, urinary, hemopoietic, nervous, and so forth. Included is a chapter on the examination of sick children which is excellent.

The author gives an explanation of the common symptoms and signs found in each disease, and follows by a discussion of the common diseases in each group and their diagnostic signs. Clinical medicine is presented in a simple, clarified and interesting manner, but is not as well written as our American texts on the same subject.

FITZMAURICE.

A PREFACE TO NERVOUS DISEASE. By Stanley Cobb, A.B., M.D. Bullard Professor of Neuropathology, Harvard Medical School, etc. 173 pp. $2.50. William Wood & Company, Baltimore, 1936.

The author states this book is written to give students of medicine and physicians the facts and correlations needed to understand the facts and workings of the central nervous system. Psychology being the study of the mind and psychiatry the study of the abnormal mind, one should be familiar both with neurology and neuropathology. Fifty years ago neurology was just beginning to be recognized as a science. It progressed with extraordinary rapidity with an emphasis on both anatomic and physiologic methods. After chapters on the autonomic and cerebrospinal nervous systems the author discusses motor integration and locomotion and functional localization in the cerebral cortex. An instructive chapter considers paths of infection to the nervous system. The chapter on special histologic pathology deals with neurosyphilis, suppurative meningitis, encephalitis, cerebral softening and other common cerebral conditions. While this volume is not a complete digest of the subject, it contains much instructive information.

THEORY AND PRACTICE OF PSYCHIATRY. By William S. Sadler, M.D. Chief Psychiatrist and Director, The Chicago Institute of Research and Diagnosis, etc. A Psychiatric Textbook for Neurochiatric Specialists and General Practitioners of Medicine. 1231 pp. $10. The C. V. Mosby Co., St. Louis, 1936.

This is a large, comprehensive book intended for use as a textbook or reference book for psychiatrists as well as general practitioners in medicine. There are no modern textbooks of psychiatry, as such, that include treatment in all its phases in any manner that will help the practitioner in psychiatry to better understand treatment. This is especially true of his treatment of the neuroses. The method of classifying various forms of psychiatric conditions is helpful and the author's diction and ability to describe symptomatology in a clear manner are good.

The parts of the book having to do with childhood behavior patterns and child psychology, as well as personality maladjustments, are well written. Many of the case illustrations are helpful and in the book are many references and sometimes many pages given over to discussion of relationship between psychiatry and lay points of view. The psychopathology of anxiety states and sexual neuroses is rather incomplete and subject to criticism, but contains much good theory. The final chapters, having to do with therapy, are very helpful in that they give the general practitioner tangible methods upon which to lean. The fact that the book is very complete and includes about every psychiatric concept, described in some detail, represents its greatest value. HOEDEMAKER.

A TEXTBOOK OF PHYSIOLOGY. By H. E. Roaf, M.D. Toronto, D.Sc. Liverpool, M.R.C.S., L.R.C.P. Professor of Physiology in the University of Liverpool, etc. Second Edition. 679 pp. $6.25. Wm. Wood & Co., Baltimore, 1936.

This textbook is an introduction to physiology, intended for medical students. The book is simply written, and arranged in a logical manner. The student is introduced to the mechanical aspect of physiology, as muscles, nerves and skeleton; then to the chemical, and regulating mechanisms of the human body, and is then able to visualize the physiology of the system as a whole. The author presents no

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new material, nor proposes any new concepts. Students in physiology will find this text an excellent introduction to their subject. FITZMAURICE.

CHEMICAL PROCEDURES FOR CLINICAL LABORATORIES. By Marjorie R. Mattice, A.B., Sc.M. Assistant Professor of Clinical Pathology, New York Post Graduate Medical School of Columbia University, etc. Illustrated with 90 Engravings and 2 Colored Plates. 520 pp. $6.50. Lea & Febiger, Philadelphia, 1936.

This book is the outgrowth of a long teaching experience in the New York Post Graduate Medical School of Columbia. It is a laboratory guide designed for the student of biochemistry. The author states that the selection and condensation of biochemical data are so dependent upon opinion as to render it particularly vulnerable to critical judgment. It is not a reference volume nor a resumé of the literature, but it is a guide to be used on the laboratory table where the tests are being made by the student. In the appendix a concise resumé of normal data is well tabulated. In the interpretation of biochemic data frequently the normal is lost sight of, and a pathologic significance is assigned to the laboratory findings. Especially may this be true when it is difficult to reach a definite diagnosis. The book is intended for the laboratory worker. MOSIMAN.

LIVE LONG AND BE HAPPY. How to Prolong Your Life and Enjoy It. By Lewellys F. Barker, M.D. Professor Emeritus of Medicine, Johns Hopkins University. 224 pp. $2.00. D. Appleton-Century Company, Inc., New York, London, 1936.

This volume has been expressly prepared for intelligent laymen who wish to prolong their individual lives and for general practitioners to advise the layman how to produce this result. Relations of heredity and environment, personal habits and occupations are discussed. There are chapters on the adequate treatment of infectious diseases and prevention of diseases of various organs that may shorten life. The final chapter on periodic health examinations and longevity is useful both to the layman and practitioner. This is one of the few medical books which the physician can conscientiously recommend for lay reading.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS. A Brief, Simple, Accurate Financial Record for the Physician's Desk. Standard Log $6.00, Double Log $11.00. Colwell Publishing Company, Champaign, Ill.

This is a convenient physician's record book for daily use, each page listing name of patient, service rendered, charge, cash, for each month; followed by pages for expense sheet, surgical record and other data. There is also a convenient obstetric record with spaces for listing various facts concerning each patient. If one is not wedded to any other form of record book, this is worthy of consideration.

CONTRACEPTION AS A THERAPEUTIC MEASURE. By Bessie L. Moses, M.D. 106 pp. $1.00. The Williams & Wilkins Company, Baltimore, 1936.

If one is seeking information based on practical application of contraception, he will find something of interest in this booklet. It presents the results of the work of The Bureau for Contraceptive Advice in Baltimore extending over a five-year period. This bureau was established under the auspices of a group of men connected with the Schools of Medicine and Hygiene of the Johns Hopkins University. The dispensary dealt with 1152 patients, of whom 81.1 per cent were white and 18.9 per cent were negroes. About 80 per cent of the white and 69 per cent of the negro women had used some method of contraception previous to coming to the bureau. There are many interesting facts presented concerning methods employed, results, pregnancies and abortions. The sponsors of the bureau believe contraceptive advice has a definite place in the practice of medicine and is a valuable asset in the treatment and prevention of disease.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Vol. III, Forty-sixth Series, 337 pp. $3.00. J. B. Lippincott Company, Philadelphia, Montreal, London, 1936.

This well known quarterly presents original articles by twenty-three contributors representing leading medical schools in various parts of the country. They discuss problems in surgery, medicine, neuropathology, ophthalmology and otorhinolaryngology. In this volume one finds instructive consideration of many conditions which are encountered by the general practitioner and specialist.

PARADOXICAL BEHAVIOR OF WASSERMANN TEST IN LATENT SYPHILIS. In order to examine the behavior of the Wassermann test in latent syphilis Louis Chargin and Theodore Rosenthal, New York (*Journal A. M. A.*, Oct. 24, 1936), studied a series of 500 consecutive case records. The Wassermann test was reversed to negative in approximately 10 per cent, remained persistently positive (Wassermann fast) in 23 per cent, and showed a paradoxical behavior in 67 per cent. These patients were treated by the chronic intermittent method (Neisser). It is possible that treatment by the continuous method as outlined by the Cooperative Clinic Group would yield better results; such a study is now in progress. In latent syphilis, while the Wassermann test following treatment is frequently reduced in its positivity or even reversed to negative, almost as frequently it remains uninfluenced by treatment or is found to be of a higher degree of positivity after treatment than before. During rest periods, authorized or unauthorized, the Wassermann test often fluctuates without any apparent reason. In a considerable number of patients the Wassermann test, negative at the beginning of treatment, unexpectedly becomes two plus or over at the end of treatment; this unusual behavior cannot be looked on as a provocative test, since these were syphilitic patients, with many positive Wassermann tests just prior to the paradoxical reversal. Even when extensive treatment was given, the Wassermann test fluctuated between negative and positive, almost at will. In a number of patients it was observed that at the outset of a course of treatment the Wassermann test was positive, remained positive at the completion of the course, and after a rest interval of weeks or months would suddenly become negative. In a number of patients in whom treatment was discontinued, for one reason or another, but subjected to repeated Wassermann tests subsequently, the test again showed paradoxical behavior, progressing from positive to negative unexpectedly.

INTERNAL HERNIA FOLLOWING ROUND LIGAMENT SUSPENSION. M. A. Michael, Philadelphia (*Journal A. M. A.*, Oct. 17, 1936), states that many cases of internal hernia through the broad ligament, either postoperatively after the Webster-Baldy type of suspension or through fenestrae, have been reported. Only three other cases of internal hernia following a round ligament suspension of the Gilliam type have been found reported in the literature, although the occurrence seems such a likely one. Two cases of internal hernia following ventral round ligament suspension were seen in the service of Dr. Block.

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USE OF THE APPLE AND APPLE PRODUCTS IN THE TREATMENT OF SUMMER DIARRHEAS AND DYSENTERIES *

IRA A. MANVILLE, M.D., PH.D.,
ELIZABETH M. BRADWAY, PH.D.
AND
AVOCA S. MCMINIS
PORTLAND, ORE.

A curve showing the number of deaths in the United States by the month has two peaks in the course of a year. The first peak begins its ascent in April, reaches its crest in July and begins subsiding in September. The lowest points for this curve lie between December and April. The predominant causes of death at this time are diseases of the gastrointestinal tract. The second peak begins its ascent in September, reaches its crest in January and immediately begins subsiding to reach its lowest levels in July and August (fig. 1).

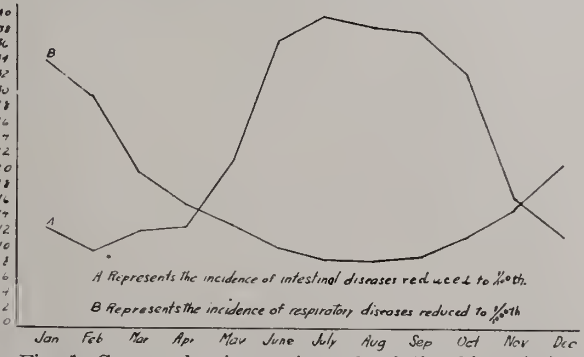

Fig. 1. Curves showing reciprocal relationship existing between deaths due to intestinal and respiratory infections.

RECIPROCAL RELATIONSHIP EXISTING BETWEEN THE CURVES SHOWING DEATHS FROM INTESTINAL DISORDERS AND FROM RESPIRATORY DISEASES *

Month	*Total Deaths from Intestinal Disorders*	*Total Deaths from Respiratory Diseases*
January	1,105	34,535
February	1,017	30,048
March	1,261	20,283
April	1,337	16,161
May	2,174	13,597
June	3,737	10,493
July	4,008	9,385
August	3,886	9,033
September	3,828	9,462
October	3,244	12,168
November	1,929	15,515
December	1,435	18,955

* Figures are taken from the Mortality Statistics for 1933, United States Department of Commerce, Bureau of the Census.

The seasonal incidence of disease has long attracted the interest of investigators. It was not many years ago that Hess demonstrated what he termed the "seasonal tide" in blood phosphorous. He showed that there was a direct relationship between blood phosphorous and the richness of sunshine in ultraviolet light. It is largely due to work of this nature that an explanation is provided for the seasonal increase in rickets and spasmophilia which occurs in the later winter and early spring.

Likewise there is a physiologic basis for an increased susceptibility, not to say incidence, in disturbances of the gastrointestinal tract. This pertains to the regulation of those factors concerned in the production of hydrochloric acid in the stomach. It is well known, for example, that hydrochloric acid is not produced in as plentiful amounts in the child's stomach as it is in that of the adult. Abt states that in children up to eight days of age, only minimal amounts of hydrochloric acid are found in the stomach. Some healthy breast-fed infants never show free hydrochloric acid. Usually a free acid test will be positive a few minutes after feeding barley water but not for an hour or more after feeding milk.

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* From the Department of Physiology, University of Oregon Medical School.

* Read before the meeting of Western Branch of American Public Health Association, Vancouver, B. C., June 27, 1936.

The acid values in the stomach gradually increase with age, but, according to investigators at The Mayo Clinic, do not reach the adult level until the age of twenty. From this time on acid production remains fairly constant until the age of forty, at which time a gradual decline begins. At the age of sixty, twenty-eight per cent females and twenty-three per cent males are found to be achlorhydric. Thus there is seen to be a close correlation between age and gastric acidity.

Temperature, both internal and external, has been shown to exert a marked influence on the production of acid in the stomach. Chang, for example, has shown that patients suffering from febrile disorders suffer a decrease in gastric acidity to one-third the normal amount, even though histamine is used as a gastric stimulant. In a study of 106 such patients, he demonstrated the fact that the decrease was proportional to the height of the fever. Thirty-one per cent exhibited complete achlorhydria. This is eight times the normal incidence. Arnold[1] and his associates have shown that there is a reciprocal relationship between the activity of the cutaneous areas of the body and that of the splanchnic region, and that this is due to changes in environmental temperature and humidity. To quote, "a decrease in skin function is characterized by a contraction of the vessels, peripheral leukopenia, decrease in the permeability of the cells of the skin and adjacent tissue. Accompanying this is a dilatation of the stomach, increase in gastric juice, increase in the permeability of the liver cells, vasodilatation of the splanchnic region with an increase in the concentration of leukocytes. The opposite orientation of the skin, that is, vasodilatation, peripheral leukocytosis, increase in the activity of the skin and adjacent cells are always accompanied by a decrease in cellular activity of the stomach and liver, vasoconstriction, splanchnic leukopenia, etc."

The efficiency of the stomach to act as a gastric barrier against the invasion of bacteria into the upper levels of the small intestine is believed to be maintained entirely by the presence of free hydrochloric acid. The normal hydrogen ion concentration of the duodenum and upper jejunum lies between a pH of 5.0 and 6.3. In order for this reaction to be maintained there must be produced in the stomach enough hydrochloric acid to neutralize the alkalis, saturate the proteins of the foods ingested and still leave an excess. The normal bactericidal power of the small intestine is definitely impaired by the ingestion of alkalinized foods, protein-rich foods, foods to which the individual is allergic, high external temperatures and fevers. Success in the maintenance of a normal predominance of hydrogen ion concentration in the upper intestine is thus seen to be dependent upon a proper coordination between physiologic processes, nutritive elements and environmental conditions. Once this balance is upset and the hydroxyl ion predominates, bacteria common to the lower reaches of the intestinal tract and organisms introduced with the food and drink will have easy access to places they do not normally inhabit, namely, the duodenum and jejunum. Thus Moro's "endogenous infection" as a cause of diarrhea and dysentery is explained.

The child, therefore, has a triple handicap with which to contend, age, season and chance infection. Modern sanitation and hygiene are fast reducing the chance of infection by specific intestinal pathogens almost to the vanishing point. Proper sewage disposal and careful supervision of milk and water supplies are further reducing the chances of infection. But those cases of enteritis from non-specific causes, such as the endogenous infections mentioned above, have scarcely been influenced at all. Indeed, the problem is concerned more with nutritional physiology than with sanitation, although it still remains in the province of public health.

Presumably from what has been said already, children under two years of age would have less gastric acid than those over two years of age. Furthermore, a larger proportion of the food intake of the younger children would be milk. Both these factors, in accordance with the statements previously mentioned, should result in a greater mortality from diarrheal conditions in the younger group. This we find to be the case as the following table shows:

DEATH RATE OF CHILDREN UNDER TWO YEARS AS COMPARED WITH THE DEATH RATE OF CHILDREN OVER TWO YEARS

Month	*Under 2*	*Over 2*
January	611	235
February	595	232
March	694	298
April	783	296
May	1,273	456
June	2,110	725
July	2,111	795
August	1,996	795
September	2,117	781
October	1,740	628
November	960	395
December	717	330

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[1] Arnold, L. and Brody, L.: Gastroduodenal Bactericidal Mechanism. Am. J. Hyg., 6:672-683, Sept. 26, 1926.

In 1930, the death rate from diarrhea among children under two in West Virginia was 70.7 per hundred thousand of population. Except in New Mexico and Arizona, this was the highest rate reported and it was nearly twice the next highest. There is considerable contrast, when this figure is compared with the rate of 4.6 for Oregon and 5.4 for Washington in the same year. Lyon,[2] in discussing this situation, states that it illustrates well an important environmental hazard for the infant and child living in West Virginia. The high incidence of dysentery observed in this group is evidence of the fact that preventive pediatrics may call for more than the efforts of the individual physician and of cooperative parents. The prevention of dysentery seems to be even more dependent on the efficiency of the public health agency and on the social enlightenment of the community than on the activity of each physician or parent.

As already intimated, the various factors which cooperate to produce a normal reaction in the duodenum and jejunum may be divided into two groups. The first or physiologic group includes the normal ability of the stomach to secrete acid and the variations in this activity brought about by age and adjustments to internal or external temperatures. The second or nutritive group includes foods with an alkaline reaction, high protein content, or foods to which the individual is allergic. In other words, this group includes those factors which, by their actual presence in the stomach, further modify the adjustments brought about by the first group. Obviously, in order to obtain normal conditions there must be an intelligent balancing of one group against the other and the maintenance of a proper relationship between factors in the same group. Thus in warm weather one eats less protein food, while in hypochlorhydria one eats more carbohydrate food or selects foods of high acid value to reduce the buffer value of the proteins eaten. It is in such considerations as these that one sees the value of the time-worn culinary practice of serving apple sauce with roast pork, cranberries with turkey or lemon with fish.

The value of acid fruits, berries and vegetables does not lie entirely in the acid they contribute. Bergeim, Hanszen and Arnold[3] have recently reported new values. They found that, when a normal individual who has fasted twelve hours eats an apple, a banana or an orange one hour before 200 cc. of whole cow's milk inoculated with B. prodigiosus is drunk, very few if any of these organisms are recovered from the colon eight hours later. When the inoculated milk was not preceded by the fruit premeal, over half the organisms were recovered. These results were obtained when fresh fruit was fed. When desiccated apple was fed an hour before the bacteria were ingested, none of the organisms was recovered, although a little more than half as many organisms were ingested. On a dry weight basis the apple seems to be more efficient than the banana. The probable reason for the greater efficacy of the dried over the fresh fruit is in the larger quantity of dry material fed.

Bergeim and his associates found that one of the most toxic substances for yeast and B. coli found in the large intestine is butyric acid. After a premeal diet of two bananas (eight bananas per subject per day) these workers were able to demonstrate the presence in the colon of amounts of butyric acid as high as 578 cc. of a 0.1 N solution. Lawrence and McCance[4] have pointed out that the breakdown of cellulose and hemicellulose in the intestine by bacteria results in the production of the lower fatty acids, butyric, lactic and acetic.

In our laboratory we have been especially interested in developing the use of the apple in infant intestinal disorders. The powder was developed from necessity, since in our chemical work we were unable to check our results with the raw material. Subsequently we found that the powder exceeded in some respects the values of the fresh apple from which it was derived. This was due, we believe, to the increase in the amount of pectin resulting from the powdering process. Our attention was first directed to this work by observations already reported in regard to the unexpectedly high vitamin A values found in some varieties of apples and in the eroded and ulcerated condition of the intestinal tract of animals suffering from an experimentally produced avitaminosis-A. We number ourselves among those who believe that a deficiency in vitamin A leads, among other things, to marked regressive changes in the gastrointestinal mucosa, a change characterized by a breakdown of the mucous membrane, especially that of the villous tips and the outer third of the mucosa, and in a reduction in the mucus-producing elements.

We have reason to believe that vitamin A does not play an exclusive role in maintaining the normal functional and structural integrity of the mucosa. The prosthetic portion of the mucin molecule is glucuronic acid, so that any process involving mucous production would be suspected of involving glucuronic acid also. Conversely, any condition in the body making an unusual demand upon glucuronic acid as, for example, the detoxication mechanism, might reasonably be suspected of exerting an injurious effect upon the mucous membrane. Would the demands of the mucous epithelium and the requirements of the liver for detoxication purposes constitute rival interests competing for available glucuronic acid? Does the apple contain sources of glucuronic acid or of any other uronic acid which might be of use in the body by conjugating with toxic materials or by sparing the mucous epithelium of unusual demands being made upon its metabolic activity?

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[2] Lyon, G. M.: Bacillary Dysentery as Observed Among Normal Children in Huntington, West Virginia. Am. J. Dis. Child., 49:367-382, Feb., 1935.

[3] Bergeim, O., Hanszen, A. and Arnold, L.: Influence of Fruit Ingestion before Meals upon Bacterial Flora of Stomach and Large Intestine and on Food Allergins. Am. J. Digest. Dis. & Nut., 3:45-52, March, 1936.

[4] McCance, R. A. and Lawrence, R. D.: The Carbohydrate Content of Foods. Medical Research Council; Special Report Series, No. 135.

It was such considerations as these that prompted us to make a survey of the various components of the apple with the purpose of determining their individual merits or values. A careful review of the foreign literature shows that the tannin content of the apple accounts for only a very small portion of its therapeutic value. Such preparations as tannalbumin fall far short of apple in curative properties. The organic acids undoubtedly are of value. The chief reason for this is two-fold: first, the acids aid in maintaining a reaction in the stomach and upper small intestine which make these structures effective in autosterilization; second, some of the acids such as butyric acid, which is produced in the lower intestine, act specifically as bactericidal or bacteriostatic agents, thus providing for a second self-sterilizing medium.

We do not wish to underestimate the value of the organic acids; nevertheless, it has been shown that alkalinized apple sauce still retains the ability to cure diarrheas. Vitamin A also is of undoubted value in keeping the mucous membrane in a healthy condition. Any water-soluble vitamin such as vitamin C is required in greater amounts in those conditions where there is an increased water exchange. Vitamin C itself plays a definite role in preventing hemorhrages in various tissues. As will be described later, it serves another purpose just as important. The alkaline minerals, the sugars and starch serve an obvious purpose. Nevertheless, apple powder, which is low in vitamins A and C, shows no reduction in its curative properties and, as is well known, the use of sodium bicarbonate or of glucose, while of value, does not compare at all to the advantages derived from the use of apple pulp or powder.

To what, then, does the apple owe its main healing property? We believe it is resident in the pectin component. Pectin is a polygalacturonide, containing eight molecules of galacturonic acid. Heretofore, no nutritive value has been assigned to this interesting substance. The housewife is interested in it because of its jell-forming properties. The grandmother values it because of the jellies she can serve in the sick room. We hope that from now on the physician will appreciate it more as a definite therapeutic agent.

We have been able to show as a result of our research that pectin exerts a definite protein-sparing action, thus indicating a nutritive value. Furthermore, we have been able to demonstrate that the galacturonic acid derived from the breakdown of pectin is capable, like glucuronic acid, of forming conjugation products with toxins, thus promoting their rapid excretion or oxidation. Rabbits made toxic by the administration of menthol die in three or four days unless they receive, along with the menthol, available sources of these valuable uronic acids.

It appears to be true that the body is able to synthesize glucuronic acid from the glycogenic amino acids resulting from the breakdown of body proteins. However, this synthesis proceeds at a very definite rate. If protein breakdown is spared to some extent by an available source of calories; if the amount of toxin introduced into the body exceeds what the synthetic ability of the body can handle, a crisis occurs which usually results fatally. The administration of pectin enables the organism to spare its body protein to a large degree and still be able to have sufficient uronic acids for conjugative purposes. We administer to rabbits weighing between four and five pounds, from three to six grams of menthol per day. Relatively speaking, this seems to be a huge dose. However, it constitutes the chief source of toxin.

An individual, living under ordinary circumstances, has at least five sources of toxin with which he must deal. These are: toxins produced as the result of metabolic activity, for example, the menotoxins; toxins produced as the result of normal bacterial activity on food materials in the intestine; toxins entering the body with the food supplies such as decomposition products, preservative drugs, etc.; toxins introduced into the body in the shape of drugs as, for example, aspirin; and, lastly, toxins produced in the body as the result of invasion by pathogenic bacteria as, for instance, the diphtheria toxin.

With the experimental, uninfected rabbit on a starvation regime, menthol, therefore, constitutes the chief toxin. Under these conditions it may require as much as two grams of menthol given thrice daily to produce death. If, however, the rabbit develops pneumonia, enteritis, has an abscess or is given along with the menthol a small dose of amidopyrine which normally forms a uronate in the body, only two grams of menthol may prove fatal. In other words, the presence in the body of a source of toxin—a toxin produced continuously in unknown amounts—keeps the available glucuronic acid reserves, if there be such, or the machinery for its synthesis so nearly exhausted, that one additional source of toxin, relatively small though it may be, is sufficient to produce serious effects. When it is realized that the toxins from pneumonia or from an abscess are capable of reducing the lethal dose of menthol 66 per cent, the doses of menthol used in these experiments may not seem so large.

Several investigators have pointed out the detoxifying effect vitamin C has upon the diphtheria toxin. Jungeblut and Zwemer[5] conclude from their researches that vitamin C inactivates diphtheria toxin and helps to protect guinea pigs against the fatal outcome of diphtheria intoxication. The evidence that the rabbits needs vitamin C as badly as the guinea pig is not conclusive. Nevertheless, when 300 mgs. daily of crystalline cevitamic acid was given to rabbits intraperitoneally, they were enabled to excrete 30 per cent more menthol glucuronate in the urine than the control rabbits. Furthermore, vitamin C spared, to some extent, the toxic breakdown of body protein.

The apple, more than any other food with which we are acquainted, possesses in the highest degree the therapeutic advantages set forth above. It is undoubtedly this that justifies the high place it occupies in folklore and that it should occupy in our estimation. Nature made a provision more wise than fortuitous when she established a seasonal increase in fruits, berries and vegetables; foods high in water for the better regulation of body heat; foods rich in sugar which has the lowest specific dynamic effect and is the easiest available source of energy; foods containing a plentiful amount of acids, and of cellulose for the maintenance of the self-disinfecting mechanism of the intestine; foods rich in vitamins for the replenishing of reserves depleted during the winter and foods rich in hemicellulose and pectin, excellent sources of those substances so indispensable in combatting an accumulation of toxins.

We believe that the mucous membrane is able to remain intact only when there is a proper balance between the secretion of hydrochloric acid on the one hand and the production of alkaline secretions and buffering materials such as mucin on the other. If this balance is upset because of an overproduction of one or by a deficiency of the other, erosive changes develop. The subject material of this report has been concerned chiefly with the value of such food materials as the apple in maintaining normal balances in the stomach and intestine; by supplementing the acid in the stomach when it is low; by acting as a buffer and as a protective colloid in the intestine and, best of all, by providing rich sources of materials for conjugation purposes, so that the injurious effects of toxic materials may be reduced. Fruits such as the apple should be considered as being more than food. They are medicinal agents possessing both prophylactic and therapeutic powers.

Public health agencies have greatly advanced the standards of sanitation and have improved the sources of food materials. They have successfully combatted the spread of many infectious and contagious diseases. Education of the layman has played no small role in these. Measures now should be instituted to instruct the common man in the proper selection and use of foods so wisely placed at his disposal.

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[5] Jungeblut, C. W. and Zwemer, R. L.: Inactivation of Diphtheria Toxin in Vivo and in Vitro by Crystalline Vitamin C (Ascorbic Acid). Proc. Soc. Exper. Biol. & Med., 32:1229-1234, May, 1935.

THERAPEUTIC AND PREOPERATIVE ACTIONS OF RAW APPLE PULP

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Heisler[1] and Moro[2] started the use of raw apples in cases of dysentery in young children and infants during 1928 and 1929. The story of this new method of therapy is quite as dramatic as that of the origin of smallpox vaccination by Jenner.

Heisler, a general practitioner, in Koenigsburg, Germany, observed that infants fed scraped raw apples improved faster than was his usual experience from the various forms of dysentery he was treating. He then observed a series of cases in which only scraped raw apples were used and found that the patients made more rapid recovery than they had under his previous routine. He reported his findings in a paper in 1928. This paper came to the attention of Professor Moro, head of Pediatrics at the Heidelberg University, who in turn also used the treatment on a fairly large series of cases, substantiating the findings previously reported by Heisler. As a result of the work of these two men, the system of treatment has come to be known as the "Moro-Hiesler two day apple diet."

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[1] Heisler, A.: Rohe-Apfel-Tage, ein neues Verfahren zur Behandlung diarrhoischer Zustände. Med. Velt. 4:1934, Sept. 27, 1930; Roh-Aepfeltage bei sämtlichen diarrhoischen Zuständen im Säuglings-und Dinkeslater sowie bei Erwachsenen. Fortschr. d. Therap. 7:279-281, May 10, 1931.

[2] Moro, E.: Zur Behandlung der Ruhr mit Apfeldiät. München. Med. Wchnschr. 78:1661, Sept. 25, 1931; Zwei Tage Apfeldiät (roh und gerieben) zur Behandlung diarrhoischer Zustände im Kindesalter. Klin. Wchnschr. 8:2414-2417, Dec. 24, 1929.

During the next two years many similar articles were reported in the continental literature and at present the method is very widely accepted by pediatricians all over the world. Dodd,[3] Birnberg,[4] Huth,[5] Reglien,[6] Stancanelli,[7] Rowley,[8] McCaslan,[9] Tompkins,[10] Giblin,[11] Stein,[12] Kalaski, Mitchell, Tompkins, Giblin, Stein, Kalaski,[13] Mitchell,[14] McBride,[15] have published articles in the American literature on apple feeding. In all these articles there has been a uniform similarity and the results reported have been identical in the following respects: (1) the exclusive use of raw ripe apples brings an almost immediate symptomatic relief to infants ill with various types of bowel infections, (2) the temperature drops within the first twenty-four hours, (3) the number and consistency of the stools change abruptly at the onset of treatment, (4) at least ninety per cent of the cases, regardless of severity, are symptomatically well within forty-eight hours, (5) there is difficulty experienced in returning some cases to milk diet, relapses occurring which require additional days of apple treatment.

EPIDEMIC DYSENTERY

This vicinity is visited each fall with a particularly fatal dysentery epidemic mostly confined to infants and children. Our mortality rate last year from this condition was 54.28 per 100,000 population, or a total of thirty-six deaths. During the same period the mortality rate in King County from the same cases was 2.6 per 100,000 population. The morbidity from this condition is extremely severe. I do not believe the death rate to be anywhere near one per cent, but considering it on this basis it would mean that between three and four thousand patients suffered from dysentery in the 1935 epidemic, easily ninety per cent of these patients being children.

About five years ago I began using the apple treatment in all adults and children afflicted with intestinal infections and have experienced the same results as enumerated above. In a series of 946 cases under ten years of age in which severe diarrhea was a symptom there was only one death under apple therapy. In this case meningeal symptoms were present at the time treatment was started.

One of our local pediatricians, reporting in the August issue of NORTHWEST MEDICINE on our epidemic dysentery, stated that the apple pulp feeding was not effective in these epidemic dysentery cases. He failed to state, however, that it was his practice to give the apple pulp mixed in the milk formula. I am convinced it is for this reason that the treatment of these conditions was not successful in his instance. The method is entirely contrary to the idea of the Heisler-Moro two day apple diet and is bound to be ineffective for the reasons hereinafter enumerated.

There is no doubt that previous conceptions regarding the action of apple on the intestinal tract must be entirely revised. The accepted theory that bulk and roughage, as such, are irritating to the bowel and stimulate peristalsis must be excepted in the case of apples, as the action of this bulk on the intestinal tract is soothing and decidedly constipating even to the highly inflamed and irritated bowels of very young infants suffering from severe dysentery.

Like other means of therapy, there are definite rules which must be followed if best results are to be obtained. The first rule in feeding apples therapeutically is that they must be eaten on an empty stomach; second, they must be finely chewed; third, they must have sufficient time to leave the stomach before being mixed with other foods; fourth, foods of high protein content seriously minimize the effect of the apple and in seriously acute cases will absolutely neutralize the beneficial effects expected; fifth, cooking temperature greatly impairs the apple's therapeutic value.

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[3] Dodd, K., Minot, A. S. and Casparis, H.: American J. Dis. Child., 43:1, Jan., 1932.

[4] Birnberg, T. L.: Raw Apple Diet in Treatment of Diarrheal Conditions in Children. Am. J. Dis. Child., 45: 18-24, Jan., 1933.

[5] Huth, E.: Use of Fresh Apple Pulp in Diarrhea, etc. Thesis., Milwaukee, 1933.

[6] Reglien, N. C.: Diarrhea in Infancy and Childhood; Treatment with Moro Apple Diet. J. Indiana M. A., 26: 362-365, Aug., 1933.

[7] Stancanelli, G.: La dieta di mele nella cura delle diarree del lattante. Pediatria, 42:345-361, April, 1934.

[8] Rowley, J. L.: Raw Apple Diet in Treatment of Diarrhea. Am. J. Nursing, 34:682, July, 1934.

[9] McCaslan, W. H.: Raw Apple Diet in Treatment of Diarrhea of Children. South. M. J., 27:1021-1023, Dec., 1934.

[10] Tompkins, C. A.: Infant Diarrhea with Special Reference to Apple Therapy. J. Indiana Med. A., 28:278-280, June, 1935.

[11] Giblin, J. and Lischner, M. D.: Treatment of Enteritis in Infants and Children with Raw Apple Diet. Arch. Pediat., 52:355-360, June, 1935.

[12] Stein, H. B.: Apple Diet in Treating Diarrhea in Infants and Children. Colorado Med., 32:608-611, Aug., 1935.

[13] Kaliski, S. R.: Raw Apple Diet in Treatment of Diarrhea. Texas State J. M., 31:191-193, July, 1935.

[14] Mitchell, J. M.: Treatment of Diarrhea in Infants and Children by Diet of Raw Apples. M. Clin. N. Am., 19:301-305, July, 1935.

[15] McBride, R. H.: Diarrhea of Infants and Young Children. J. Iowa M. Soc., 26:190-192, April, 1936.

MODE OF ACTION

One of the most puzzling things about this means of therapy has been its means of action. Various causes for the paradoxical reaction have been advanced. It was thought by Heisler and Moro that the pectin of the apple was the causative agent, but it was later proven that many foods containing pectin did not have this therapeutic action. Later, others thought it was mallic acid which tended to change the pH value of the intestinal flora, but again it was found that neutralizing the acidity of the apple pulp did not change its effectiveness in the intestinal tract. The vitamin theory has also been advanced as well as the action of fruit sugar.

It is with hesitation that I suggest a possible definite cause for the effect obtained, an effect equally successful regardless of the cause or severity of the bowel invasion. It is my thought that the action of the apple pulp is not one of a germicidal nature, but that it is entirely one of absorption of the toxic effects of bacterial invasion. I believe that the only effect the apple pulp has on the intestinal flora is that of removing exotoxic products of bacterial growth, thereby relieving the system from the absorption of these products and allowing the blood stream defenses to concentrate directly on the bacterial invasion.

In other words, I believe the action is similar to the drainage of an abscess. The extreme vascularity of the bowel, serving by nature as the absorption agent of the body, is particularly vulnerable to the exotoxic products of pathogenic bacterial growth, and as long as these invasions are present in the bowel, the body must absorb the poisons much the same as it absorbs those from an abscess in any other systems of the body. If the apple pulp is able to hold these toxic products in suspension until they are eliminated, the patient will of necessity feel a prompt symptomatic relief such as is experienced when the absorption from an abscess is relieved by drainage. It seems to me that one of the reasons this method was so long in being discovered was that it remained for Heisler and Moro to exclude all other foods at the time apples were fed. Therefore, by their two day apple diet, they eliminated the neutralization of this absorbing effect by mixing with other foods, particularly those containing protein.

Thus is explained also the reason for the difficulty in returning infants to milk feedings after severe dysentery. If one imagines the symptomatic cure of the patient being accomplished by the absorption only of the exotoxic products of bacterial growth, there remains in the intestinal tract, or the wall of the intestine, the original pathogenic invader. If the treatment is stopped, or the effect of the apple pulp is neutralized by the addition of milk or protein before these organisms are themselves eliminated, we have a prompt relapse in the patient's condition, necessitating a return to the exclusive apple diet. That there is a great difference in the length of time necessary for the system to completely clear itself of various types of bacterial invasion is evidenced by the time required for the continuation of the apple diet in some cases. In several instances it has been necessary for me to continue the apple diet for as long as six weeks before the patient was able to retain a sufficient amount of milk without recurrent symptoms to show a gain in weight.

Particularly is this true in cases that have advanced to the state where mucous bowel casts are formed. These cases, I have noted, retain a slight temperature as long as the bowel casts are present. This is in contrast to the average case where the temperature drops to normal within the first twenty-four hours under apple routine.

Again, to further the theory that the action of apple pulp in these conditions is absorptive, we have the rapid symptomatic improvement which is the common experience. These critically ill dysenteric infants, who have been vomiting all food including water, do actually show a definite symptomatic improvement almost from the first tablespoon of apple pulp. If the action of the pulp was of a germicidal nature and symptomatic relief was obtained from such small doses, it is only logical to suppose that massive doses of a like substance would completely eliminate the entire testinal flora.

Schreiber[15] reported a small series of cases in which repeated stool cultures were taken during the course of apple treatment. In his findings a rapid relative increase in the colon bacillus became apparent from the time the apples were fed. Also we have experimented with direct broth and agar cultures of apple pulp and found that the presence of apple powder and apple pulp in no way interfered with culture growth. In the effort to get the greatest possible concentration of the elements

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16. Schreiber, W.: Apfeldiät und Darmflora, Med. Klin. 27:1452-1454, Oct. 2, 1931.

of apple pulp, we dehydrated the apples to a two per cent moisture content and found that on agar and broth media there was a rapid growth of bacteria after only a few hours of incubation, showing that the most concentrated apple powder is not sterile.

The action of apple pulp in the intestinal tract is not confined to the absorption of products of bacterial invasion, but is also effective in absorbing other poisons from the bowel. Experiments at the University of Oregon have shown that animals previously fed on apples could absorb an abnormal amount of alcohol before they were intoxicated. A California company making concentrated apple juice reported that as an experiment they gave their product to a number of passengers on an extremely rough passage to Catalina Island in which most everyone was very ill. The result they claimed was very gratifying in seasickness.

PREOPERATIVE ADMINISTRATION

This detoxicating effect may be further substantiated in the experience I have had in feeding apples as a preoperative routine. Two years ago a minor operation under general anesthetic lasting ten minutes was performed on a young woman twenty-four years of age. This patient intended to go home the evening of the surgical procedure, but it was three days before she had sufficiently recovered from her ether sickness to leave the hospital. About six months later it was necessary to do a laparotomy on this same patient.

Because of her previous experience it was decided to put this patient on an exclusive diet of apples for two days previous to operation. During this time she was instructed to eat at least fifteen apples each day, and if possible to consume twenty. The results were most gratifying. There was not only a lack of postoperative nausea but there was also a complete absence of postoperative intestinal colic. Further, at the time of operation we found that the small and large bowel were completely collapsed and apple pulp could be felt throughout the entire intestinal tract. There was no evidence of increased peristalsis. There was no gas present in any part of the bowel and the visibility in the abdominal cavity was much the same as that experienced when spinal anesthesia is given.

Subsequently I have tried this method on seventeen cases, three of whom could not eat the required number of apples, so that the results in these instances were of no value, but in fourteen the experience was identical with that of the first case. One cesarean awakened one hour after surgery, complaining bitterly of hunger. She was started on a soft tray the first postoperative day with no ill effects.

As further proof that apple pulp has a decided inhibiting influence on peristalsis, we found that these cases all had no gas pains following operation, but when laxative was given on the third day to reestablish peristalsis, the ordinary procedure (one ounce of castor oil followed in two hours by irritating enemas) was entirely ineffective. In every instance we had great difficulty in getting the bowels to resume activity after they had been dormant for four days with the lumen filled with apple pulp. Five cases were extremely resistant to laxatives and in each of these, on the sixth postoperative day, they were seized with most severe abdominal colic necessitating opiates for relief.

Is it not possible that the explanation for the lack of postoperative colic in these cases, in which preoperative apple diet was given, might be on a bacterial basis, assuming that these pains are caused by pathogenic bacteria normally present in the bowel, whose irritating influence has been established by weakening the patient's resistance through the anesthetic and the shock of operation? It is easy to imagine an agent whose action is that of absorption of toxin and the inhibition of peristalsis accomplishing the result.

Assuming the action of apple pulp on the intestinal tract to be as described, namely one of absorption of metabolic products of pathogenic bacterial invasions, I have made bold to increase the field of this therapy very materially, but the scope of this paper does not permit the detailed report of all applications possible.

THERAPEUTIC APPLICATIONS

I mention in passing some of the conditions which are materially benefited by this simple means of therapy. In infants, aside from the severe dysenteries, we find that the chronic loose stools incident to artificial feeding are entirely controlled by a few teaspoonfuls of apple pulp from thirty to fifty minutes before feeding. Cross, colicky infants are also materially improved by the same method of treatment.

Manville at the University of Oregon has proven that the apple is exceedingly high in vitamins A and B and also has a relatively high content of vitamin C which make this fruit highly desirable in the diet of young infants. At present I have started the feeding of raw apples for this reason and those mentioned above in thirty-four infants under one month of age and have found the treatment highly effective in every instance. Periodic examinations of urine specimens have not shown albumin. Nursing infants take solutions of powdered apple more readily than they do the raw apple by teaspoon. I have been using in these cases Po-Ap, a powder locally prepared.

In adult work, aside from the preoperative use mentioned, we find that apples fed between meals and at bedtime are effective in the treatment of chronic low grade gastrointestinal bacterial invasion of all kinds. We find that acute prostrating gastrointestinal infections in adults are relieved quite as promptly as the acute invasion in infants, simply by putting the patient exclusively on apples for two days. We find that chronic and acute rheumatic infections, where the focus of infection is an intestinal absorption, are relieved by the use of raw apples. In many cases of rheumatism it has been necessary to continue the use of apples for almost indefinite periods. The patients receiving symptomatic relief when the apples are eaten, but a return of symptoms when they are discontinued, possibly indicated that they did not have the ability to throw off the invading organisms, even though the toxic effects of their presence had been eliminated.

We also find that the distressing bowel symptom of typhoid fever and amebic dysentery are markedly relieved by the use of a raw apple diet, but the effect on the invading organisms is not sufficient to alter the course of the disease.

SUMMARY

1. The effect of apple pulp on the gastrointestinal tract is to inhibit peristalsis on one hand, and to fixedly absorb the products of pathogenic invasion on the other.

2. The toxic absorption is not limited to bacterial poisons, but is likewise effective in certain chemical poisons.

3. The beneficial action of apple pulp on the intestinal tract is markedly neutralized by food of high protein content.

4. Apples must be eaten in sufficient quantity to fill the entire intestinal tract, if the best results are to be obtained.

5. The apples must be very well chewed to be effective. Large chunks of bolted apple not only tend to neutralize the soothing effect on the bowel, but are apt to cause a biliary upset in patients who are subject to gallbladder disease.

LEGALIZED BLACKMAIL, THE MALPRACTICE RACKET*

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Malpractice, as recognized and accepted by the courts and under the law in most states, especially the State of Washington, constitutes the most serious economic menace to organized medicine, not even excepting state medicine or other governmental agency control of our profession. In seeking the basis for a solution to this growing menace one hundred twenty-six articles on the subject have been read. Some states were found to have advantages in handling the problem and this led to correspondence with authorities of eighteen states, provinces of Canada, every large clinic in America, the outstanding hospitals, with jurists, attorneys and doctors, the American Medical Association, American College of Surgeons and various insurance carriers for helpful data. Conferences have also been held with leading attorneys, Superior and Supreme Court judges of this state and countless members of the profession.

Most articles have been merely a review of what has taken place, a comprehensive delineation of what constitutes malpractice, alarm expressed over its rapid growth, fear for the future and hope that it might not continue. There have been a few isolated suggestions for correction of the evil, but no unified, fighting plan of action. There has been a tendency to speak in whispers and to be extremely careful in handling the problem.

I propose to take the hide off everyone who has anything to do with the development of the most diabolical method of racketeering since Al Capone went to Alcatraz. We have waited long enough, too long, for those who should have done so to correct flagrant and obviously manifest injustices inflicted upon us simply by virtue of power to do so, while we went studiously about our efforts to solve the problems of infantile paralysis, cancer, tuberculosis, and in fact all the problems affecting the health of others and the health of our nation. In other words, living true to the magnificent history of our profession, we have given all for others, nothing for ourselves. This character of public service must now stop until we take care of this problem which, left alone, will soon jeopardize the high type of service we have been able to render individuals and the public. We must face and fight this battle, even if necessary at the temporary expense of advancement in scientific procedures.

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* Read before the Forty-seventh Annual Meeting of Washington State Medical Association, Yakima, Wash., Sept. 1-2, 1936.

To such proportions has this form of thievery developed that distinguished jurists, noted attorneys and members of the lay press have joined in presenting the malpractice racket in its true light. Those engaging in this form of legalized crime are shown no mercy by any of these writers. Judge Edmund P. Morgan of the Superior Court of San Francisco has characterized malpractice suits as "blackmail in ninety-nine cases out of one hundred." Numerous outstanding attorneys have delivered blistering broadsides against this blot upon our civilization and unprincipled assault upon our profession.

In the July issue of *American Mercury,* Henry M. Robinson, writing on "The Newest Medical Racket," states that "during the depression the litigation curve has soared . . . and the lust for damage-money has incited even 'nice' people to magnify slight claims into grave charges against physicians." "Plenty of shysters will not scruple to press the action against a jury's tear glands," and "one of the finest human relations is being endangered and an incalculable human loss sustained." "Even an unsuccessful malpractice suit has unhappy repercussions in a doctor's life, causing him great worry and loss of prestige." He quotes the late Chief Justice Taft in the famous case of Ewing vs. Goode, wherein this noted jurist declared that a "physician is not a warrantor of cures." To this notable decision another has added that the surgeon cannot be held to be a guarantor against surgical accidents, such as the leaving of a foreign body at operation.

Every honest doctor realizes that there are legitimate malpractice cases, and at no time have we shirked our duty in seeing that justice is done by the patient in all cases of real malpractice. The thing we protest is the rapidly growing menace of studied and systematized robbery masquerading under the guise of malpractice and directed by an unscrupulous element of the legal profession (it being shown that only 3½ per cent of attorneys of standing accept malpractice cases). It is this form of crime which is slowly awakening the medical profession from its lethargy and stirring them into action throughout the land.

In this pseudomalpractice or legalized blackmail it is not the doctor who is guilty of malpractice. Whenever a doctor of sound training and high standing is called into court to defend himself in an action for recovery of damages, for something he did or did not do, some attorney is guilty of misfeasance for the reason that the attorney knows that the medical profession is no more and no less infallible than the legal or any other profession. Thus he lowers the standard of, and respect for, his own profession.

No case of malpractice litigation against a doctor who has been well trained and who maintains high standards would ever be brought by any conscientious attorney, if all the facts were known and considered. No other profession is sued for malpractice. The medical profession alone is held and compelled by law to be infallible, superhuman. Either this is so, or else those attorneys who accept malpractice suits must believe us to be reckless, ruthless blunderers who give no thought to the most vital problems affecting human welfare. Or possibly there is a certain type of attorney who believes the legal profession infallible and expects the other professions to be so. In support of this possibility, there have been fewer suits filed against attorneys for malpractice in the entire history of the state of Washington, almost half a century, than have been started in one week in King county alone against doctors of the highest standing.

What is there for us to conclude from such a vast difference other than that the attorney participating in the suit is out after blood money, knows that he can get it and that he is protected by law in his nefarious program. What does it matter to him that the doctor has spent fifteen years of honest toil and hard labor and sacrifice to start upon his career and other years of service to reach the pinnacle of success in his profession? What cares he if the doctor's fortune is wiped out, his reputation and high standing jeopardized? What does it matter to him that the patient has suffered no *actual* damage? As a matter of fact, when we subject his conduct to close scrutiny, do we not see a striking similarity between his actions and those of the racketeer in business? Each gets his blood money through power, one through power of his advantage in the law, the other by power of the bomb.

I think it fair to assume that the average attorney starts in life with no greater mental capacity than the average doctor. The attorney spends about six years in preparation, the doctor a minimum of nine, while the doctor most often sued has spent fifteen years in addition to weeks or months each year attending clinics or taking postgraduate work. The doctor knows that he is dealing with the most precious thing on earth, human life. The fact that he has become a doctor bespeaks his intense interest in human life; therefore, every possible precaution will always be uppermost in his thoughts and actions. It naturally follows, whenever misfortune befalls his efforts, that it could not be honestly considered by any attorney worthy of the honor of that title or by any court on earth, that any preventable thing had transpired. Consequently, any suit in such a case, hidden under the cloak of alleged malpractice, is nothing less than flagrant injustice.

On the other hand, the attorney deals with the material affairs of individuals and it cannot be unreasonable for us to presume that he would be less intensive in determination to have no unfavorable outcome to his efforts concerning material values than would the doctor, whose efforts concern themselves with human life values. It would, therefore, seem to the doctor that malpractice litigation against attorneys would occur far more frequently than against doctors. Yet the number of malpractice suits brought against doctors is ten thousand fold greater than the number which might justly be brought against attorneys. Every doctor who has had much court experience has witnessed amazing examples of malpractice on the part of an attorney in the form of lack of preparation of the instant case, lack of knowledge of the law, the stressing of points which should be left alone, overlooking the most vital points in his case and then just plain stupidity. Possibly it might be well for the medical profession to start a backfire and instigate a lot of malpractice litigation against our friends of the law. It may be such a course might awaken them to the seriousness of the most diabolical procedure ever perpetrated by members of one profession against those of another.

There are three main fundamental causes for malpractice litigation against doctors: courts, cowardice and crookedness. No one has a more profound respect for the courts than have I. But this respect and high esteem in which I hold our courts does not compel me to fall down and worship at their shrine and to accept their directions to juries based upon fancied, or alleged opinions over and above actual, sound knowledge of honest, intelligent medical men, on purely technical medical questions. And, regardless of their own attitude and that of the entire legal profession toward their fancied opinions, I propose to condemn any designation or dictation upon what is or what is not scientific medical fact from whatever source it may emanate. No one has an opinion, no one has any right to an opinion, no one can have an opinion upon a technical subject he knows nothing about, be he judge, king, pope or other potentate.

If a group of ten surgeons of soundest integrity and training were asked the question: "Is the leaving of a foreign substance in the human body evidence of neglect?" there would be ten instant answers, "No!" If this number were multiplied by a hundred or a thousand the answer would be unanimous, "No!" Every surgeon knows that such a happening is a surgical accident which, in spite of all human efforts, cannot and never will be eliminated. Yet the law of this state implies that such knowledge is not knowledge, but "presumptive evidence of negligence."

Now let us investigate this point from another angle. Suppose a doctor were called upon to determine whether or not the decision of a court was proper and right. Ten judges or ten thousand judges might declare the decision correct. But the doctor with no more knowledge of the intricacies of the law than the courts have of the complexities of the surgeon's task would have equal justification for declaring it incorrect and classifying the decision as "presumptive evidence of negligence."

In the trial of a case both the judge and the attorneys have abundant opportunity for conferring with other attorneys or judges and for looking up authorities and decisions on disputed points. After the trial is concluded the judge may hold the case under advisement for months, while he ponders his problem and even then he may be reversed by a higher court. The surgeon, on the other hand, at operation has no such opportunity for consultation or advice. He must carry all his knowledge with him to the operating room and his decision must be spontaneous and his action absolutely accurate. Yet he is held accountable for the slightest accident or error of omission or commission and is subject to damage suit if his necessarily instantaneous judgment is in error. If the attorney makes a mistake it's just too bad. If the judge makes one it's terrible, may mean financial or social ruin, but nothing is done about it. The judge is not impeached, the attorney not disbarred and neither is sued for malpractice. But if the doctor in his haste to save a life does something wrong, smack goes a damage suit, prosecuted by one of these and judged by the other. What travesty! Of course, they compliment us by the implication that our judgment of the moment should be superior to theirs after consultation, looking up authorities and perhaps months in arriving at their conclusions, but no doctor has been found who seemed overwhelmed with joy at the magnificence of the compliment.

Cowardice is found in our courts, among attorneys called upon to defend malpractice suits and among doctors victimized by malpractice litigation. In the beginning of time when Mrs. Adam had her appendix removed and the court characterized the leaving of a sponge as "presumptive evidence of negligence" he established a precedent. And, brethren, let all reverently remember the most sacred, solemn and revered god known to the science of law, precedent.

Precedent in the law is almost always followed, seldom upset, rarely questioned or reversed. Consequently, as the river flows down hill, so also has followed the decisions of our courts. Thousands of judges have recognized the unfairness and injustice of this stupid, half insane subidiotic decision and many have blushed with shame when having to enforce it. Yet cowardice, fear of reversing precedent, has caused such unjust and impossible decisions to continue to be rendered. In only one case have we found a decision in which the court showed sufficient intestinal fortitude to put aside precedent and give independent opinion. Funk versus Bonham, Ind. 151, N.E.R. 22, the court held "that a jury of laymen are not competent to pass upon a question requiring for its correct solution scientific and expert knowledge."

Attorneys cringe with fear when called upon to defend a doctor in a malpractice suit. They know the law has 'em licked before they start and they're afraid to start.

The courage of the doctor has always been one of his noblest attributes. Yet there can be found no more cowardly, snakey action than that of the doctor who finds himself attacked by this hydra-headed monster. The mere suggestion that some patient is about to bring suit against him causes the doctor to shiver and shake through the daytime and to require hypnotics for his rest at night. He will beg his insurance carrier to settle the claim against him at any cost. He will passively acquiesce in charges made against him which he knows to be unfounded. He will lend color to them, even magnify them, rather than have himself exposed through the courts and possibly the press, as one charged with malpractice. I am aware of no greater blot upon our honored profession than this form of cowardice.

Crookedness: B. J. Branton, efficient chairman of Minnesota's active medicolegal committee, offers the following formula:

$$\text{“Doctor} + \frac{\text{Patient and second doctor}}{\text{Lawyer and expert witness}} = \text{Malpractice suit.”}$$

Legalized blackmail almost always arises after the second doctor has come into the case. There are two types of doctor who are responsible for originating the suit, one who innocently (?) or thoughtlessly (?) makes an incautious remark, the other who sees an opportunity to promote selfish ends. The first cannot be excused. He is on a slightly higher level, but is not to be classified with the little rat who finds that something has gone wrong and seeks to exalt himself in the eyes of a gullible patient by criticizing the first doctor's treatment. He suspects that the first doctor is heavily insured and that he can get his "cut"—two, three, possibly five thousand dollars — by encouraging suit. He plants the seed of disturbance in the mind of the patient who then goes to some attorney. The attorney approaches the thing, as a rule, with full knowledge that the doctor is afraid of a malpractice suit, whatever the outcome. And like the python of the jungle which comes upon an innocent little doe, throws his coils around its quivering body and waits with glistening eye and lashing tongue until he sees his victim crushed, just so the attorney proceeds to work upon his victim, the doctor. He presses his malpractice gun against the terrorized brain of his helpless victim and calmly proceeds to extort from him or from his insurance carrier every penny of blood money guaranteed to him under this abortion of justice, legalized blackmail.

As stated, there are only a few attorneys of standing who will accept malpractice suits, the average being three and one-half per cent. This percentage by striking coincidence is about the same as that of our profession who do criminal abortions.

Practically all malpractice suits are against doctors of the highest training and standing. Seldom in this racket is there a suit against cultists, the reason being obvious; they have no insurance and are not financially responsible.

Either from an incautious remark or from hope of financial gain, the second doctor is found responsible for starting malpractice suits in from 55 to 82 per cent of all cases. In the last five year period in one state, Minnesota, one doctor out of every three was sued. Thus every doctor who practices medicine in Minnesota for fifteen years may expect a malpractice suit to be instigated against him.

In almost every state, except those where more favorable laws have been enacted, there is a steady increase both in number of suits started and in the insurance rate. In Minnesota this increase was 121.5 per cent. In many states all save one insurance carrier have abandoned malpractice coverage.

Almost every malpractice case carried to the higher courts has either been reversed or the amount of damages awarded greatly reduced. It is shown that innumerable suits could be stopped, if full and complete data were furnished capable medicolegal committees immediately a suit is threatened. In Massachusetts, where full data are required and furnished, less than one case in six threatened is filed. One reason for this is that the society defends doctors but pays no verdict. They make no compromise unless through instigation of the patient who agrees to pay all expenses.

Not only are surgeons victims but in large and increasing numbers internists and other specialists are being sued for incorrect diagnosis or treatment. Let no one think that he can rest secure, that either he will not get into malpractice difficulty or that his insurance carrier will take care of him. Remember, this is a systematized racket which is becoming thoroughly organized for the purpose of instigating malpractice suits against every insured or financially responsible doctor. In Seattle a leading law firm has been consulted by these malpractice gangsters and has passed the information along to the medicolegal committee. Naturally the profession in other cities and states will in time be preyed upon by similar racketeers.

In the face of this remarkable array of indisputable facts and the blot cast upon our civilization and upon all those individuals participating in the malpractice racket, it is not surprising that we are sometimes charged with refusal to testify against each other in malpractice litigation. This charge is both unfair and unfounded in fact, but we do refuse to aid and abet crime by testifying in obvious racketeering malpractice cases. But even if we did refuse to testify in all cases we would, according to Judge Morgan, be wrong in only one per cent of the cases. Let us hope that we will never have to adopt this method which would be out of harmony with our high standards of principle and honor, but let us rather believe that we can educate all concerned to a fairer and more just attitude before having to resort to such tactics as a last bulwark of defense against this deliberate form of extortion.

Attorneys who profess surprise at our refusal to testify in these racketeering cases should read an article by F. W. Anthony in *New England Journal of Medicine,* January 16, 1936. No attorney could be found who would take a case against a brother attorney for the mere collection of a fee for professional services. Maybe the attorneys can understand that.

The honor and trust in which our profession has been held is challenged. The well-nigh sacred esteem with which we are regarded by all decent people stands jeopardized. In other channels we have properly blocked intrusions from outside sources on all medical questions. Let neither the scavengers of the legal and medical professions nor the small percentage of decent attorneys who occasionally participate in malpractice suits cause reflection to be cast upon our honored profession. Let us awaken from our lethargy. Let us arise and in the full force of our power and might go forth a solid phalanx to strangle this outrageous and unprincipled assault upon our honor.

For purposes of this attack the following suggestions are made. (1) Expel from membership in all medical organizations any one who through incautious remark or otherwise causes a malpractice suit. (2) Make known to the laity that malpractice has become a racket, and participation in it is characterized as crime in ninety-nine cases out of one hundred; also, that accidents happen in medicine as in any other walk of life. (3) Prevail upon the courts to put aside outworn and archaic decisions of the dark ages and accept sound, honest, intelligent, medical opinions upon purely scientific medical questions. (4) Establish a common sensed, rigid and workable understanding between the Bar Association and Medical Societies on proper malpractice litigation and arrange for a jury of doctors to pass upon questions of scientific fact, their report to be furnished judge and jury. (5) Drop all insurance and work out a plan for mutual protection. (6) Appoint standing mediocolegal committeemen thoroughly interested in this problem, to serve during performance of duty. (7) Form an association of the medicolegal committees of the several states, hold annual meetings and require the committees to attend until an honorable and comprehensive plan is established throughout the nation for protection against systematized and legalized robbery. (8) Revise the law so that a doctor who is held up by a malpractice bandit has at least as good a chance for escape as the victim held up with a gun. (9) Countersuits for libel against litigant, attorney and the doctor who support this type of malpractice litigation. (10) Recognize real malpractice as we have always done and continue to see to it that the patient victimized by actual malpractice is as generously remunerated as the circumstances warrant. (11) Blacklist attorneys who accept malpractice cases without first cooperating with the proper authorities of the medical association. Let their names be widely circulated as men who refuse to play fair with our profession. Also refuse to testify for these attorneys in any case. (12) Never compromise. Carry all adverse lower court decisions to the Supreme Court.

DISCUSSION

Judge Charles P. Moriarty of Seattle: We have listened with interest to the vigorous presentation of the malpractice problem by my friend, Dr. Walter Kelton. Needless to say, in loyalty to the "noble but impoverished" profession of the law, I cannot agree as a "matter of law" with all that has been said. Many of the decisions of the Courts in malpractice cases have, from a "medical viewpoint," been unjust and in some instances irreconcilable with the known facts of the medical practice. But it must be remembered that the fault lies not with the law essentially, but with the profession of medicine itself. The layman has ever regarded the doctor as a mysterious being, possessing a combination of black magic and quasidivinity, and yet the high regard in which your profession is held and the splendid contributions made by it to mankind have created in the lay-mind a legend of infallibility which renders it critical of inevitable results over which the profession has no control.

I know that this body has no desire to protect a malpractitioner. No one should endeavor to protect him, because it would be using the shield of one of the finest of human relations to protect a dishonorable and dishonored member. What the profession resents, and properly so, is the baseless charge often made after a qualified practitioner has had an untoward result, due to a surgical accident or conditions beyond his control. The patient, then, dissatisfied with the result, discouraged in mind, and sick in body, hails him before the bar of the court. Unfortunately, it is often the doctor of the highest type in training, ability and character who is sued.

Let us proceed to examine this and the part performed by the law. The law does not punish for an accident. The law does not hold the doctor for an untoward result, but the courts and bar must have some tribunal where it can be determined whether it is an accident or otherwise. In this has come the confusion. To me it is clear that it is the duty of the medical profession to protect a patient injured by culpable malpractice, and, on the other hand, to protect the qualified doctor against ignorant or unscrupulous individuals.

Frankly, I may say that in my practice I have never been consulted by anyone in connection with a complaint against the profession who has not been inspired by the loose, careless or malicious suggestion of a fellow practitioner, "the other doctor." This has not been always by direct statement, but silence often gives consent. The unuttered word has stimulated suspicion. The other doctor succeeding to the case, either inspired by terror at the situation confronting him, or desirous of perfecting an alibi for future use, proceeds by innuendo, suggestion or deliberate charge, and creates an atmosphere of negligence, incompetence, ignorance or incorrect treatment. Is this state of mind created by cowardice or jealousy? Does it not reflect upon the honor and charity of some of the profession? After all is said, what tools are in the hands of the unscrupulous member of the bar in malpractice litigation without the active aid or collusion of a member of the medical profession? If it takes eight to ten years of arduous, scientific study to qualify, where else could a lawyer get his testimony of malpractice? No evidence presented in court is of value in such a case, generally, from the surgeon or physician, unless it tends to prove that the defendant doctor actually did something wrongful, or omitted to do something he should have done. How can a member of the bar prove his case without the whispered suggestion of a doctor? True, there is the medicolegal person, who, because of his training should be able to supply the information to himself. He is the exception. He carries the troubles and woes of the bar, bench, surgery and delivery room so heavily as to be unable to extricate himself from his own difficulties, and from my observation he knows so much about medicine when he is practicing law, and so much about law when he is practicing medicine, that the less said about him the better.

It suffices to say that it is an almost undeniable fact that very few, if any, suits for malpractice can be successfully prosecuted without the use of expert medical testimony. Rid your ranks of the medical "Judas," and the profession will be marching forward.

I am here to suggest a plan to further justice, but the initiative for its enactment must come from the profession in the legislature. The first step toward this objective is the enactment of a law providing that, before a complaint be filed against a physician, it must be accompanied by the affidavit of a physician setting forth in detail the exact facts of malpractice complained of. This is not a burdensome requisite. In the first place, the attorney for patient and doctor would be benefitted because he has a recital, under oath, of the facts. The patient is benefitted because he has the sworn statement of a qualified practitioner. The defendant doctor is aided, because the issues are clear and defined. The profession is benefitted because it knows the claim and the doctor.

Some may doubt the efficacy of this suggestion. May I say it is born of practical experience. Personally I do not engage in malpractice litigation. Many times I have been consulted by aggrieved patients. In practically every instance the other doctor has sown the seed. Necessarily, I know little of the facts. The other doctor is the source of my information. The simple formula of, "have the doctor put it in writing," has ended the retainer. The written word over a signature, strange as it seems, has cooled the ardor of the doctor for the patient and the patient for the case. No one desires to record suspicion, conjecture or speculation, particularly when the cold type lives on, and idle words fade, and "the other doctor" is no exception.

The next step toward a solution is to provide by statute that, upon filing the complaint, a committee of three disinterested doctors, selected from a list of qualified practitioners in the particular field, certified by the State Medical Association and paid by the State, shall immediately examine the plaintiff to determine the facts. They shall then, under oath, report their findings to the court, and their testimony shall be available to either party. This would make available the truth to all, give to the bar and the public the facts, remove the question of a contingent fee and favoritism, dignify such litigation and expose the culpable. The rotation of doctors would eliminate the so-called expert, and permit all to participate.

These suggested amendments would be subject to vigorous opposition, but if carefully drawn could be sustained as to constitutionality. The suggestions are given to you for your consideration in protecting honorable men, who have dedicated their lives to a sacred calling, from litigation which in the most part, though unsuccessful, causes serious damage to the profession as a whole. The members of the bar yield a willing and deserved tribute to the medical profession and will bend every effort to safeguard its rights.

PETROUS TIP ABSCESS

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Petrous tip abscess is one of the most dreaded complications of mastoiditis. Of late much has been written in the journals of otolaryngology regarding this condition and the relative advantage of employing various methods of surgery or of following conservative and expectant treatment. One such case has recently come to my attention, and the treatment and outcome may be of interest to others as they have been to me.

Case history. A male child, aged 8 years, was brought to the office March 16, 1936, because of pain and a draining right ear. The onset had occurred two weeks previously with an earache. The pain disappeared for about three days and then returned. The earache became more severe and the mother dropped warm sweet oil in the ear. This process was repeated until two days before the patient was brought into the office. At that time the ear broke and the pain spontaneously disappeared.

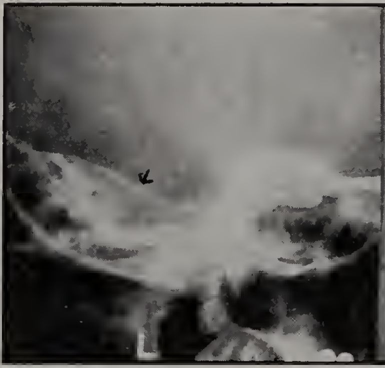

Fig. 1

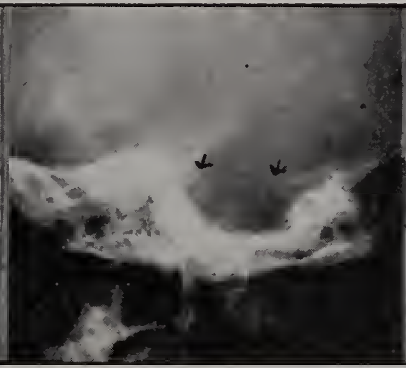

Fig. 2

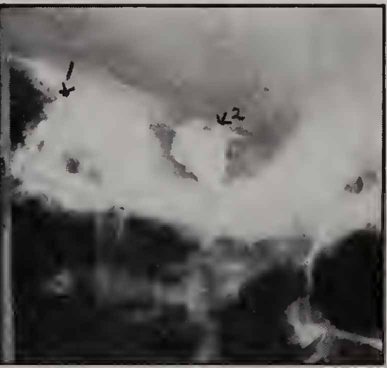

Fig. 3

Fig. 1. Left side. Arrow points to abscessed cavity.

Fig. 2. Right petrous tip. Arrow points to abscessed cavity.

Fig. 3. Postoperative roentgenogram, showing lipiodal injected into abscess cavity, arrow 2. Arrow 1, tract leading to cavity.

Roentgen report. Right petrous ridge, taken in modified Stenver's position (50 millamps, 79 kilovolts, 30 inches, 1 sec.) shows destruction from about the center of the medial border. The entire aerated portion of the bone has been destroyed and there is an area of decreased density at this point, suggesting osteomyelitis. The mastoid on this side shows evidence of recent operation and there are no cells visible with the exception of a few small cells in the region of the tip. The bone in this area shows increased sclerosis.

Examination revealed some swelling and tenderness over the right mastoid and a bulging drum with pulsating discharge emitting from a small perforation in the anterior, superior quadrant. A myringotomy was performed in the posterior half of the drum. The patient was afebrile at this time.

Two days later the child was brought to the office somewhat improved subjectively, but with the postauricular edema unchanged, and still afebrile. The patient was sent to the Doernbecher hospital and roentgenogram taken. This revealed generalized haziness throughout but no evidence of actual cell destruction. Blood examination was essentially normal with 87 per cent Hb., 4,000,000 red cells, 9,000 white cells, and 62 per cent polymorphonuclear cells.

March 23, seven days after first seeing the child, some sagging of the posterior canal wall developed, and, with a slight rise in temperature to 99.8°, operating was deemed advisable (a simple mastoidectomy). On making the initial incision a gush of thick purulent material was encountered. A fistula was found, opening through the osseous posterior canal wall. The necrosed cellular structures were removed from the mastoid and the wound completely closed, the blood clot method being employed. The patient ran a septic type of fever from 98° to 103° for six days, after which the temperature returned to normal and remained there. The wound seemed to be clean and practically healed, only a slight serous drainage from the middle ear being present.

On the tenth postoperative night the restraints were broken and the patient opened the lower pole of the wound with his finger nail. A profuse bloody drainage resulted but no elevation of temperature. On the fourteenth postoperative day, the ear being dry and the drum healed, the patient was discharged from the hospital in spite of a moderate amount of mucopurulent drainage from the postauricular wound. The child was seen daily in the office, and intermittently increasing and decreasing postauricular discharge was noted, in spite of the tincture of merthiolate and iodine vapor that was used for antisepsis.

On May 11, the child complained of pain behind the right eye, and the mother stated that he had been restless during the night and had been rubbing the eye considerably during the past twenty-four hours. Examination revealed an unchanged amount of discharge, temperature 99.6°, and an intact drum head. The retroorbital pain continued intermittently for three days, at which time examination showed a recurrence of the discharge from the middle ear. The mother reported that the child had vomited his breakfast that morning. Questioning brought out that the vomiting was not projectile in type. At this time it was suggested that the child reenter the hospital for observation, but flat refusal was encountered.

The above symptoms and signs continuing unchanged for five days, and the general appearance of the patient steadily becoming worse, it was demanded that the child be hospitalized. Again it was refused, and the office visits were discontinued. On May 24, five days having elapsed, the child was brought to the office, with the same complaints accentuated, dark circles about the eyes, marked loss of weight and a slight icteric color. The mother reported that he had been unable to retain any nourishment, but that the vomiting was still not projectile. At this time permission was granted for hospitalization.

The patient reentered the hospital on May 25, thirty-two days after the mastoidectomy, with a complaint of discharging ear and mastoid wound, daily vomiting, pain behind the right eye, loss of weight, and redness and burning of the eyes.

Blood examination: 83.1 Hb., 3.66 r.b.c., 7,300 w.b.c., 68 per cent polys., 1 per cent eos., 19 per cent s.l., 10 per cent ono., 5 per cent staph.

Three days later, May 28, the child was returned to the surgery with diagnosis of petrous tip abscess. The old wound was reopened and the granulation tissue was removed. No cell structures were found. The posterior canal wall was lowered and the aditus was enlarged. In so doing the malleus was dislodged. Just posterior to the superior semicircular canal and just below the teemen of the middle ear, a few small granulations were removed, and what appeared to be a pin-point opening was noted.

On enlargement of the opening, a small eustachian tube curette was used to follow what proved to be a fistulous tract. The tract extended one and three-quarters inches medially from the depth of the mastoid cavity. Upon reaching the depth of the tract, repeated gushes of thick pus appeared, totaling in all about one half a dram. The tract was further gently enlarged and a tiny gutta percha drain was inserted. The mastoid cavity was loosely packed with iodoform gauze and the extremities of the superficial wound were each closed with one silkworm suture.

Following the operation a blood transfusion of 250 cc. of citrated whole blood was given.

May 29, temperature 104.2°, gradually subsiding until June 1, when it became normal and has remained so to date. The patient vomited everything eaten for two days, with definite projectile vomiting on the first postoperative day. Fluids were given by subcutaneous injection. With the fall in the temperature there was a cessation of all symptoms; the pain behind the eye, vomiting and orbital symptoms disappeared and did not return. There was an increase in appetite and the patient took on a general appearance of well being. The wound was dressed daily in the surgery, the abscess cavity being evacuated by means of suction with a blunted spinal needle through the fistulous tract.

Five days postoperatively, lipiodal was injected into the abscess cavity through the fistulous tract and roentgen pictures were made.

June 26, on the twenty-eighth postoperative day, the patient was discharged from the hospital, with a dry wound granulating in and two-thirds closed. There was a residual opening in the superficial wound at the upper pole. Plastic surgery for closure of the wound was steadfastly refused.

The patient was last seen on September 8, when he was discharged as cured, the wound and ear being dry and healed.

The reason for reporting this case is the comparative rarity of the complication and the apparent infrequency of diagnosing petrous abscess and operating on the condition before the development of meningitis or brain abscess; also the fact that the infection can be drained, if it is diagnosed sufficiently early and operated upon at the right time.

RELATION OF SANATORIUM TO TREATMENT OF TUBERCULOSIS. LeRoy S. Peters, Albuquerque, N. M. (*Journal A. M. A.*, Nov. 7, 1936), reasserts that Dr. Trudeau's experiment in the Saranac Lake sectum started the country on a sanatorium-building period which ultimately placed sanatoriums in practically every state in the union. In the early days the sanatorium treatment consisted of rest, good food, fresh air and expert supervision. There was little else to offer the patient. The progress of the disease had to be watched and the prognosis given by what the clinician could gather from physical examination and clinical symptoms alone. The advent of the x-rays and the various laboratory tests for determining activity and the progress in general were yet to come.

CALCIFIED FIBROMYOMA OF THE UTERUS SIMULATING LARGE VESICAL CALCULUS*

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Although calcification in varying amounts of deposition undoubtedly occurs in many uterine fibromyomata,[1] complete calcareous transformation, or calcified capsule, as in the case to be reported, is not only rarely noted in our literature, but according to records from the Michael Reese hospital is seldom encountered.[2] Interest is primarily due to the morbid processes preliminary to calcification, but toxemia from absorption of the products of a devitalized tumor is not to be confused with any so-called toxic theory of uncomplicated fibroids.

Regarding growth and secondary changes in this most common of all uterine neoplasms, etiology is still obscure. Whether or not development is due to ovarian hormonal dysfunction or the result of long standing pelvic inflammation,[3] the fact remains that hormones do affect the vascular supply of the tumor, conservative though you may be on the subject of endocrine glands. Moreover, the striking incidence of 25 per cent of goiter in a series of 683 cases of uterine fibromata cannot be readily overlooked, even when occurring in an endemic region.[4] The uterus admittedly under control of anterior pituitary and ovarian hormones, the pathologic drive both as to neoplastic growth and regression often corresponds to periods of glandular imbalance, with their resultant vascular changes. Nutritive loss and consequent necrosis is basic to the laying of dystrophic calcification. Lassez faire treatment aiming at shrinkage of fibroids often permits these degenerative forces to work, with untoward results to be referred to.

The fact that fibromata are now considered as a phase in the life history of the uterus, rather than a habit,[5] indicates that further attention to this subject is in order. Paradoxical as it may seem, the newer conception of management is veering away from radium toward the more conservative surgery.[6]

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* Read before a meeting of King County Medical Society, Seattle, Wash., Oct. 14, 1936.

* Urologic Department, King County Hospital, Seattle, Washington.

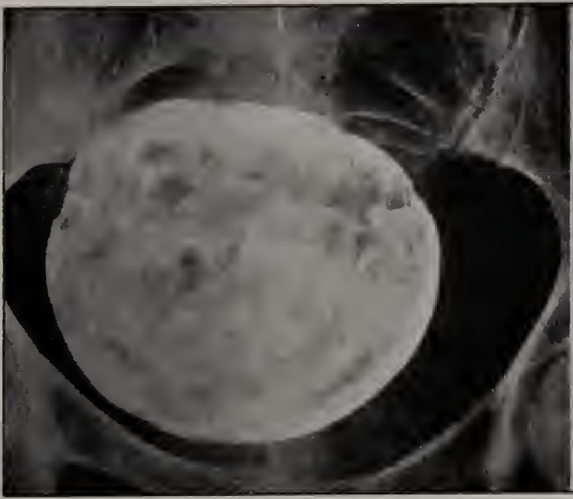

Fig. 1. Plain roentgenogram shows calcified mass in pelvis.

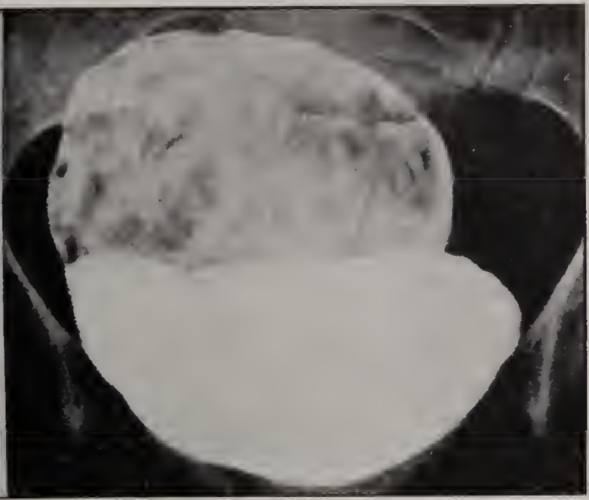

Fig. 2. Cystogram which differentiates calcified fibroma from the urinary bladder.

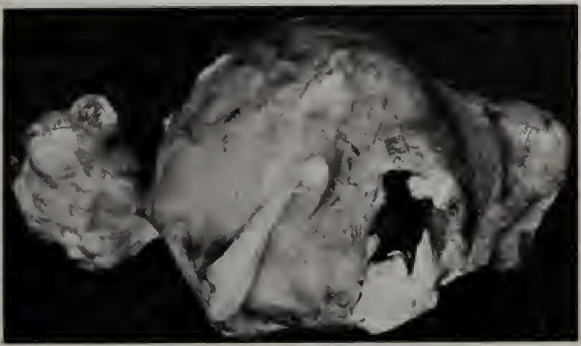

Fig. 3. Calcified uterus and adnexa surgically removed. Note the opening in the calcified wall.

The case under consideration has several interesting angles. From the standpoint of diagnosis a uterine lesion was unsuspected, a suprapubic cystotomy for vesical calculus being advised. Intermittent urinary retention was suggestive of bladder obstruction instead of extravesical pressure from a uterine growth. A urologic examination, so essential in many gynecologic problems, cleared up the true condition.

This 71 year old patient was 64 inches tall and weighed 118 pounds. She was cachectic and somewhat senile. She suffered surprisingly little in consideration of the presence of a large abdominal mass. Her chief complaint during the past year had been urinary retention, on one occasion covering a four-day period. A few months prior to examination an offensive vaginal discharge was complained of. A single pregnancy, influenza and menopause at 51 years constituted her medical history.

The temperature, respiration and pulse rates were normal, with a blood pressure of 150 mm. systolic and 70 mm. diastolic. Blood counts confirmed her anemic appearance, with a hemoglobin content of 65 per cent, erythrocytes 3,580,000, leucocytes 4,350, with a differential of 79 per cent of polymorphonuclears, 15 per cent small lymphocytes, and 6 per cent myelocytes. A Kolmer test of the blood was negative.

On abdominal palpation a hard, smooth mass was noted above the symphysis pubis, resembling a distended urinary bladder. Vaginal abdominal palpation outlined a hard spherical tumor. Just what organ was involved could not be determined. A quantity of foul smelling pus issued from the os uteri. When the catheterized urine was found to be clear, with just a trace of albumin and a few pus cells, we felt that the first diagnosis of huge vesical calculus might be erroneous. A plain roentgenogram first suggested a huge calculus in the bladder (fig. 1), but a cystogram demonstrated that the bladder was anterior to the first shadow (fig. 2). It was then easy to make a diagnosis of a calcified pelvic tumor, probably uterine.

Operation. On March 29, 1934, Torlief Torland of the gynecologic department performed a supravaginal hysterectomy. The uterus was the size of a four months pregnancy. On applying tenaculum to the fundus, it was found that the uterus was a calcified shell, containing foul smelling pus. Patient slowly recovered and was discharged April 30.

Pathology. The uterus measured 12 by 10 by 10 centimeters. The periphery was hard and brittle and consisted of a zone of calcification about 4 centimeters thick (fig. 3). Cross section revealed the uterus to be composed of soft, friable, yellowish-gray tissue, extremely malodorous. One ovary was enlarged and cystic. The diagnosis was huge, calcified, necrotic fibromyoma of the uterus, with multiple follicular cysts of the ovary.

COMMENTS

In dystrophic calcification we deal with the deposition of the same salts as in normal ossification but in a pathologic matrix of dead or dying tissue, without uniform infiltration of the ground substance. This type of formation depends upon local loss of vitality, although calcification deposits occur in disturbances in circulation or metabolism. Metastatic calcification, on the other hand, is laid in tissues without previous destruction. In Seed's study at The Mayo Clinic, gross degenerative changes were noted in 53 specimens, an incidence of 13 per cent of 404 cases.[7] In the Crossen tabulation of 1815 cases of myomata, 4.7 per cent exhibited necrosis, 5 per cent suppuration and 1.9 calcareous deposits, the degree not specified.[8]

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[7] Seed, L.: Degeneration of Fibromyomata of Uterus. Surg. Gynec. & Obst., 41:333-341, Sept. 25, 1925.

According to Curtis,[9] deposition of lime salts is a late development of fibrohyaline degeneration, noted particularly in old neglected tumors after the menopause, at which period fatty degeneration to a greater or less extent is almost constant. Curtiss has also found calcification quite common in the comparative young following pregnancy. Bonney informs us that fibroids are less likely to degenerate after the menopause.

Red degeneracy, as aseptic necrobiosis, is frequently associated with pregnancy. The end-result is a fatty necrosis with subsequent calcification. Fatty changes, which may become active during gestation, are converted into carbonate and phosphate of calcium after the fat is broken up into glycerine and fatty acid, the latter uniting with the calcium from the blood and lymph to form an insoluble soap.[10]

Among the theories advanced to account for deposition of calcium, decreased acidity of the tissue fluids is supported by Kleinmann's findings that dead tissue and necrotic areas are alkaline in reaction.[11] Such an argument is also used to explain the predilection of the lungs as sites for metastatic precipitations, the change in pH direction in these cases being due to excretion of carbon dioxide. Permanence has been calculated on the basis that removal is not possible without increased carbon dioxide for solubility.[12]

As to the forms that dystrophic calcification assumes, it may affect the peripheral zone only, as the capsule, or be interspersed throughout the tumor. The tumor may be difficult to section by means of a knife, exemplified by the Archer and Greenberg case.[13] In Kaufmann's own case calcification was complete in a globular intramural fibroma, 17 centimeters in diameter, the type in which the process is most frequently encountered.

An encircling rim of calcification is the pattern which is said to follow red degeneration or total necrosis, a tough yellowish center remaining. However much it may so appear, mineralization is not the occluding agent, for gangrenous areas and the like invariably antedate the deposits. The blood supply of the fibromyoma, meager at best, is distributed through the fibrous covering and blocking may occur as from torsion of the pedicle. When deposits are not confined to the periphery, small foci or considerable areas of salts may be found in any part of the necrosis, but the tendency is to the hyaline material.

In the Kramer and Shear study,[14] two types of calcification were noted in one of the fibroids, a "chalk" which gave the normal value of 1.98 for the calcium phosphorus residual ratio, and also a tough, firm deposit giving the abnormal value of 2.23. Wells[15] has always maintained that the composition of inorganic salts in calcified areas is practically the same, whether laid down normally as ossification or under pathologic conditions. That forming throughout the body of the tumor generally has more of the look and feel of bone.

Casual and coincidental relationships. There should be no attempt to ascribe to fibromyomata all the ills encountered in their prognosis. The hypothesis of a "myoma heart" is no longer accepted. In fact, the implication of an infectious or toxic lesion, according to Willius,[16] "greatly retarded progress in establishing the relationship of impaired cardiac nutrition and involvement of the myocardium." Jacobs[17] in his critical analysis of 30 cases of proved fibroids, using controlled groups, found no significant changes in the cardiovascular apparatus. For example, nine showing moderate cardiac degeneracy had definite lesions elsewhere, aside from myomata, that could account for the effect on the heart. Hence, the cardiac condition was adjudged as merely one of two common diseases having a maximum peak at the same period.

Crossen cites a proportion of thirteen sudden postoperative deaths from circulatory disturbances in 366 fibromata, with only three deaths from this cause in the other 3,047 gynecologic conditions. The frequency of venous stasis is probably accountable, in Curtis' opinion, for the comparatively high percentage of thrombus and embolism following hysterectomy.

When secondary anemia could not be accounted for by uterine bleeding, extensive necrosis of the tumor was disclosed in every like case at the University of Pennsylvania hospital, though no information is given as to incidence in this review of 500 cases. Such a condition definitely interferes with the nutrition of the patient. Even Jacobs[17] admits that there is no denying the fact that anemia will in time produce changes in various organs, to which the heart is no exception. The autolytic toxic material in the circulation is naturally dependent upon the size of the growth and the degree of necrosis.

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[8] Crossen, H. S. and Crossen, R. J.: Diseases of Women, 8th Edition, 648-658. The C. V. Mosby Company, St. Louis, 1935.

[9] Curtis, A. H.: Obstetrics and Gynecology, 762-780. W. B. Saunders Co., Philadelphia and London, 1933.

[10] Ewing, J.: Neoplastic Diseases, 3rd Edition, page 227. W. B. Saunders Co., Philadelphia and London, 1928.

[11] Burge, W. E., Orth, O. S., Neild, H. W., Ash, J. and Krouse, R.: Mechanism of Pathologic Calcification. Arch. Path., 20:690-696, Nov., 1935, citing Kleinmann, H.: Biochem. Ztschr., 196:161, 1928.

[12] Watt, J. C.: Deposition of Calcium Phosphate and Calcium Carbonate in Bone and in Areas of Calcification. Arch. Surg., 10:983-990, May, 1925.

[13] Archer, B. H. and Greenberg, M.: Case of Floating Uterus with Calcified Pedunculated Fibroids Presenting Aneurysms of Aorta and Right Innominate Artery. Am. J. Obst. & Gynec., 21:335-339, March, 1931.

[14] Kramer, B. and Shear, M. J.: Composition of Bone; Pathological Calcification. J. Biol. Chem., 79:121-123, Sept., 1928.

[15] Wells, H. G.: Chemical Pathology, 5th Edition, 1925, p. 487. W. B. Saunders Co., Philadelphia and London.

[16] Willius, F. A.: Present Status of Coronary Disease. J. Oklahoma M. A., 26:47-59, Feb., 1933.

Symptoms referable to pressure on the bladder or rectum are actual sequelae removable only by operation. Two cases of hydronephrosis are included in the records of The Mayo Clinic. In our case bladder dysfunction was undoubtedly initiated by the mechanism of pressure. Proof of the mechanical influence is illustrated in a recent report of a calcified fibroid, the direct etiologic factor of severe lumbago and radiating sciatic pains, the symptom-complex including constipation and painful bowel movements.[18]

Calcareous degeneration may irritate the peritoneum with consequent ascites, a case reported of the subperitoneal type.[19] In Shaw's experience at Manchester University hospital the lesion has occasionally been met with in this manner. Concerning their regeneration, approximately one per cent show sarcomatous changes, a statement which should cause more thoughtful consideration of their treatment.

SUMMARY

1. Case of calcified fibroma of the uterus, simulating vesical calculus herein reported.

2. Admitting symptoms were intermittent retention of urine and pain in the urinary bladder.

3. Incomplete examination of the case reported simulated a large vesical calculus.

4. Various periods of dystrophic calcification of myomata are herein related.

5. In all cases of doubtful diagnosis of gynecologic lesions a urologic study is of tremendous advantage in making a correct diagnosis.

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17. Jacobs, M. S.: Heart in Uterine Myoma. Am. J. Obst. & Gynec., 31:483-486, March, 1936.

18. Black, T. N.: Case Report—Calcified Fibroid. Tri-State M. J., 3:498-500, Jan., 1931.

19. Shaw, W. F.: Uterine Fibroids after Menopause. Brit. M. J., 2:919-921, Nov. 19, 1927.

20. Mitchell, E. D.: Myoma malignum. J. Tennessee M. A., 27:46-48, Feb., 1934. Reis, R. A., Baer, J. L. and De Costa, E. J.: Treatment of Uterine Fibroids. Illinois M. J., 66:485-488, Nov., 1934.

Relief of Labor Pains by Use of Paraldehyde and Benzyl Alcohol. Howard F. Kane and George B. Roth, Washington, D. C. (*Journal A. M. A.*, Nov. 21, 1936), state that in their technic of particular importance is the thorough cleansing of the lower part of the intestine and rectum with a soapsuds enema followed by irrigations with physiologic solution of sodium chloride until the return is absolutely clear. The dose of paraldehyde is 1.2 cc. to each 10 pounds (4.5 Kg.) of the weight of the woman at the beginning of labor. The dose of benzyl alcohol is always 1.5 cc. To the required amount of paraldehyde is added 1.5 of benzyl alcohol and the mixture is instilled by gravity into the rectum by means of a funnel and a large catheter, which is inserted for a distance of about 4 inches (10 cm.). As the solution disappears it is followed by not more than 30 cc. of physiologic solution of sodium chloride. Paraldehyde-benzyl alcohol is given as soon as the patient complains of pain. The dose may be repeated if necessary, one and one-half hours after the first. As labor progresses it will be found that the effect of each successive injection is more lasting, the intervals between repetitions becoming three, four or five hours. If the patient is awake one-half hour after the initial instillation of the rectal solution, one-fourth grain (0.015 Gm.) of morphine is given subcutaneously. When several doses of the mixture are given, the rectum should be irrigated with physiologic solution of sodium chloride before each alternate instillation. To minimize dehydration, a glass of orange juice or water should be given before each injection of paraldehyde-benzyl alcohol. The patient is usually capable of cooperation to the extent of drinking; otherwise dextrose, intravenously, may be given. Since the patient is not conscious of bladder distention, catheterization is performed every eight hours. The rectal injection should be repeated when the patient begins to awaken, not after she has become restless. Complete relief from the memory of pain was accomplished in 89.7 per cent of 611 patients, partial relief in 2.6 per cent and no relief in 7.7 per cent. There were 3.3 per cent of stillbirths and neonatal deaths; three, or less than 0.5 per cent, were from causes undetermined and may be charged to the method. However, since two such deaths had occurred in the preceding 1,000 cases before any anesthetic had been given, it is possible that the use of paraldehyde and benzyl alcohol may not have been the cause.

Tuberculosis of Hip in Children. The ninety cases of tuberculosis of the hip that have been admitted to the New England Peabody Home for Crippled Children in the last forty years are the basis for Joseph S. Barr's Boston (*Journal A. M. A.*, Nov. 7, 1936), data and conclusions: The present status of all but sixteen of the cases is known. Tuberculosis of the hip is often misdiagnosed (15 per cent of this series). The chief causes of death are tuberculous meningitis and secondary infection of draining sinuses. For the first of these causes no therapy is available. The second one can be reduced to the vanishing point by scrupulous sterile dressing of sinuses and by refraining from any surgical intervention during the active stages of the disease. Tuberculosis of the hip runs an extraordinarily variable course. Heliotherapy seems to have no specific curative effect on the disease. The word "cured" should be dropped for the more conservative "arrested." Fusion of the hip was successful in eighteen of a series of twenty-three consecutive cases. Failure of fusion was due apparently to extension of the disease to the grafts. In a few instances even after successful fusion in apparently arrested cases there was evidence of active disease present when the follow-up study was made. Arrest of the disease with a useful range of motion occurs too rarely to make it an expected result in conservatively treated cases. Fusion is not a "cure" but offers the best chance for an arrested disease process to remain quiescent and give a stable weight bearing limb. Complete bed rest and interdict surgery during the acute stage of the disease is advisable, which may last from a few months to three or four years. The hip should then be fused and the case followed for at least five years longer. Under this regimen one may expect to reduce the mortality rate and to return almost all the remaining patients to fairly normal economic and social activity.

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Devoted to the Interests of the Medical Profession
of the Pacific Northwest

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EDITORIAL

OUR PRESIDENTS

Particular attention is called to the likenesses of the presidents of our state associations herewith presented. While various officers of the state associations are continued from year to year in consequence of their familiarity with various activities and other details of management of the organizations, a new president is elected annually. His office not only represents the highest honor that can be conferred by the organized profession of the state, but he is also the leader during his term of office in the special lines of progress and development which are determined upon during his period of official service. Accordingly, his identity should be early established among the members of his institution. Therefore, it is believed the photographs herein exhibited will be received with appreciation by the members of the respective state organizations, whose presidents are thus visualized.

Thomas Wynne Watts
(Portland)
President, 1936-1937
Oregon State Medical Society

Dr. Watts was born at Delhi, La., January 27, 1879. After graduating from Louisiana State University, he obtained his medical degree from Kentucky University Medical Department in 1906. He served as interne in Kentucky University Hospital. He also served in the United States Public Health Hospital at Cleveland, Ohio; United States Quarantine Service at Galveston, Texas, and Frontera, Mexico. He practiced in Central America, 1907-1911 and in 1912 he spent a year in studying dermatology at New York Skin and Cancer Hospital, locating in Portland in 1913, since which time he has pursued the practice of his specialty.

THE MALPRACTICE MENACE

In all the states in recent years malpractice has become an important and vital problem in the practice of medicine. In no other profession or occupation are malpractice suits instituted in a ratio comparable in any respect to those inflicted upon practicing physicians. This menace has noticeably increased during the recent years of financial depression, apparently indicating that physicians are looked upon as legitimate prey for attacks of those seeking easy money. In this issue Kelton[1] discusses this question in a forceful, vivid manner, calling attention to certain phases of this peril constantly threatening medical practitioners. The angle most vigorously attacked in this paper deals with the malicious attorney who may instigate or conduct the attack against the medical man who is to be mulcted of some of his possessions. Whether or not one may consider the responsibility thus laid upon the legal profession as unduly severe, yet there is so much truth apparent in this phase of the subject that it deserves serious consideration.

At the Conference of State Association Secretaries and Editors of Association Journals, held under the auspices of the American Medical Association at Chicago last month, this question received much consideration. Its discussion by President Heyd of the A. M. A. was especially comprehensive, describing this menace against the profession as it exists in New York State and the efforts of the officials of the state society to overcome and abate it. The emphasis of the discussion at this conference was placed on the responsibility of the medical profession itself. As is stated in all papers dealing with this matter, no malpractice suit could be instituted without the assistance of a medical man, whose activity in the first place appears as a

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[1] Page 449.

Arthur Clifton Crookall
(Seattle)
President, 1936-1937
Washington State Medical Association

Dr. Crookall was born at Berlin, Canada, April 3, 1876. In 1886 his family moved to Santa Barbara, Calif. He located in Seattle in 1893. After graduating from the University of Washington in 1899, he entered the University of Colorado Medical Department from which he received his medical degree in 1902. He then began practice at Prescott, Arizona, locating in Seattle in 1904 where he has practiced to the present time, specializing in proctology. For a number of years he has been actively connected with the medical service bureau and Public Health League as well as being president of the county medical society.

Dailey Cooper Ray
(Pocatello)
President, 1936-1937
Idaho State Medical Association

Dr. Ray was born at Bedford, Ind., February 18, 1877. After attending the public schools of Lawrence County, he entered the State Normal School at Terre Haute from which he graduated in 1898. After teaching school for a time, he entered the Medical Department of Central University of Kentucky at Louisville from which he graduated in 1902. He interned at a private hospital in Jeffersonville and later took postgraduate work at Northwestern in Chicago and University of California in San Francisco. He located at Malad, Idaho, in 1903, moving to Pocatello in 1920 where he has engaged in general practice with special attention paid to pediatrics. He has served as a member of the school board and for two terms was a member of the House of Representatives of Idaho and recently was elected to the state senate.

purposeful or perhaps unintentional reflection upon his predecessor. It may be the spoken word, the shrug of a shoulder or merely the raising of an eyebrow which serves as a suggestion to the patient which may lead to the malpractice suit. As is well known, the other responsibility of the physician appears in his testimony for the prosecution. Without this service few suits could be instituted or completed.

The paper and discussion in this issue, as well as the discussions at the Chicago conference, offer suggestions which would be effective in suppressing this gross injustice, if they were carried out. The local medical society might feature meetings at which the attention of the members could be directed toward their responsibility to avoid by suggestion, innuendo or action, reflection on fellow physicians who had preceded them in the treatment of a case. Some societies have a committee, whose members are prominently seated during the trial so that the medical witness for the prosecution is faced by his fellow practitioners. It is said under these circumstances that his testimony is oftentimes considerably altered from what was expected of him. The publication by the local society of the names of the few attorneys in the community who prosecute these cases is said to be a deterrent factor in their activities. From various sources appears the suggestion that in these cases the court appoint unbiased experts who will report the facts in a given case which shall be accepted as definite basis for rendering judgment. It was stated that in one city the newspapers were persuaded to publish no reference to filing malpractice suits, being promised complete information on their termination. Emphasis has been placed on the fact that occasionally one of these suits has merit. Under these circumstances every effort should be made to settle the case out of court and thus avoid publicity, while all other cases should be fought to the limit without compromise. If every county medical society will study this problem with the determination to inspire each member with a sense of consideration and justice toward his fellow practitioners, hope for its solution may be anticipated.

CONFERENCE OF SECRETARIES AND EDITORS

The annual Conference of Secretaries of State Medical Associations and Editors of State Association Journals was held under the auspices of the American Medical Association at the enlarged and renovated building in Chicago, November 16-17. Practically all states were represented. From our three states were M. L. Bridgeman of Portland, V. W. Spickard of Seattle, H. W. Stone of Boise representing their respective state medical organizations and C. A. Smith of Seattle representing NORTHWEST MEDICINE. The programs presented at these meetings differ from those of the ordinary state association programs in that they do not deal with scientific medicine, but with problems pertaining to the welfare of the profession and matters affecting the state journals. The character of these discussions is indicated by the titles of the papers. Basic science laws, insurance against malpractice, the childrens bureau and the Social Security Act are questions concerning the practice of every physician and elicited more discussion than any of the subjects on the program. Papers on the Public Health League of California and the U. S. Public Health Service and the Social Security Act served to indicate the variety of subjects that were considered. The publication of these papers with the accompanying discussions will be available in the Bulletin of American Medical Association and other publications which will appear in the near future. The existence of this annual conference is an indication of the American Medical Association in all vital matters pertaining to the welfare of the medical profession of the country.

PHYSICIANS IN THE LEGISLATURE

After running the gauntlet of primary elections, it is always a matter of vital interest to observe what candidates survive the final elections. As stated in previous discussions of this matter, the presence of physicians in our state legislatures is desirable for the purpose of helping to arrive at correct decisions regarding matters pertaining to caring for the sick and public health. It is gratifying to observe the quality of medical men who have been elected to sit in our coming legislative sessions. In the Oregon Senate, J. A. Best of Pendleton, Umatilla County, will sit as a holdover senator. For the House of Representatives were elected A. K. Higgs of Portland, Multnomah County; A. O. Waller of Eugene, Lane County; C. T. Hockett of Enterprise, Wallowa County; and J. F. Hosch of Bend, Deschutes County.

Of the successful Washington candidates, J. W. Henderson of Longview, Cowlitz-Wahkiakum Counties, was elected to the senate. For service in the House were elected W. G. Cameron of Tacoma, Pierce County and R. D. Wiswall of Vancouver, Clark County. In the Idaho Senate will sit two physicians, D. C. Ray of Pocatello, president of the state Association, and T. R. Mason of Kellogg. With these well known physicians serving in their respective legislatures, one can confidently anticipate supervision over above mentioned legislative measures with confidence that only those of benefit to the citizens are likely to survive and be enacted into law.

A NEW MEDICAL JOURNAL

In the opinion of some people there exist an excessive number of medical periodicals, of which the number might be decreased with no material loss to the medical profession. Therefore, when a new publication is launched there should be a worthy reason of its existence to justify its presentation to medical readers. The latest periodical, "Medical Classics," is different from any that has yet been offered to the profession. The basis on which it is established is novel and therefore excites an interest in the reader. As stated in its preface, "Medical Classics" aims to awaken the interest of all medical workers in the historical side of their profession. Its aim is to present the original papers of discoverers or pioneers in new methods of diagnosis and treatment which have become established in the medical practice of the world.

The first number of this journal deals with the papers of Sir James Paget. His original papers on osteitis deformans or Paget's disease of the bones and that on Paget's disease of the nipple are presented in their original forms without alteration or amendment. There is included a biography of Sir James Paget and then a bibliography listing one hundred seventy-five of his books and writings. It is announced that later issues will present among other subjects the original papers on Addison's disease, Bassini operation, Graves's disease, Hodgkin's disease and many other diseases familiar to every practitioner. It is stated that suggestions as to papers to be published will be received with appreciation. This journal is compiled by Emerson Crosby Kelly, M.D., of Albany Medical College and published by The Williams & Wilkins Company of Baltimore.

FLOWERS TO THE LIVING

Clarence A. Smith has been editor in chief of NORTHWEST MEDICINE from the time of its inception to the present day. At this time he retains the alert mind, the tireless energy, the keen enjoyment of life which would ordinarily characterize those half his chronological age. His youthful viewpoint, tempered with kindliness and sincerity, is a constant source of inspiration to younger members of his staff. His sense of humor makes any work with him a delight. He is truly a happy man. The many years of labor for the journal might have dulled the interest of a lesser man, might have developed for him the ruts and routine which bespeak a lack of imagination and ability. They have, however, made Dr. Smith constantly more keen, more alert and more interested in the welfare of the project which he started so many years ago. The high position which is accorded this publication throughout the country indicates clearly the quality of his work. The continued growth and development of the journal itself are evidence of the constancy and perseverence of his efforts.

The history of NORTHWEST MEDICINE and its editor, inseparable as they are, must be well known to all in the three great states which it serves. Less well known, however, may be the respect and admiration which fellow practitioners of his own community hold for Dr. Smith. He is indeed not without honor in his own land. The esteem in which he is held was proven Monday evening, November 23, when one hundred thirty of his fellows gathered at the Rainier Club in Seattle to dine in his honor and present to him a fine Hamilton watch, slight token of appreciation of the years of unselfish effort he has put in on their behalf. Following the dinner, R. D. Forbes, president of King County Medical Society, paid tribute of that organization to the guest of honor, read congratulatory letters and telegrams from friends in the three states, and gave a brief review of the outstanding events of his busy and interesting life.

He then called on Fredrick A. Kiehle of Portland, who told of the admiration which he and others in Oregon had for Dr. Smith and his cultural attainments. In addition he discussed some of the activities of the Portland Medical Library by way of increasing interest in the Seattle Library, the development of which is due in no small measure to the activities of Dr. Smith. This was followed by short talks of appreciation by Mr. Judson Jennings of the Seattle Public Library and Mr. Charles W. Smith of the Library of the University of Washington. Arthur Crookall, president of Washington State Medical Association, then added his share of praise and presented the watch, gift of the assembled group.

Outstanding event of the evening, however, was the response by the honor guest, his humble but unmistakable joy in being thus honored, and his vigorous, well worded and able delivery. Text of his answer was taken from the review of his life by Dr. Forbes, which he amplified and embellished with tales of earlier days and earlier men. His preliminary education at Yale (he intends next year to be present at the fifty-fifth anniversary of his graduation), a short period as a teacher, his medical training at College of Physicians and Surgeons, N. Y., subsequent hospital residency, his decision to practice in Seattle, his arrival in the forest edged city via beautiful Puget Sound, his office with J. B. Eagleson, which, together with his newly painted sign were so soon destroyed by the fire of 1889, early days of NORTHWEST MEDICINE and the struggle to keep it going, all were described with such interest that his audience was held in close attention quite unusual for a group of medical men. At the close of the meeting many lingered to congratulate Dr. Smith, wish him many more fruitful years, and to express their pleasure in having participated in a very enjoyable party. The attitude of all left little doubt that the evening will long be remembered by those in attendance as a fine gesture toward one held in highest esteem, a presentation of flowers to the living.

H. L. HARTLEY.

MEDICAL NOTES

American Association for the Study of Goitre offers the usual Van Meter Prize Award of $300 with two honorable mentions for essays submitted concerning experimental and clinical investigations relative to the thyroid gland. The manuscripts receiving the first prize will be published in the annual proceedings, awards being made at the next annual meeting held in Detroit, June 14-16. Manuscripts must be submitted not later than April 1, 1937, to Dr. Blair Mosser, 133 Biddle Street, Kane, Pa.

OREGON

Hospital Reopens. Baker General Hospital, formerly the Protestant Hospital, has opened and all patients have been moved into the building recently repaired after the fire of last summer.

New Clinic Building. Paul Sharp and Cecil Adams of Klamath Falls have been granted permit for a new clinic building to cost $20,000. Modern equipment, including air conditioning, is to be installed.

Conversion Resisted. Considerable opposition has arisen to conversion of the Veterans' Facility at Roseburg into a neuropsychiatric institution. The objections are based on need for hospital and domiciliary facilities and include request for addition of equipment for neuropsychiatric care to the present plant, rather than conversion.

Hospital Election. St. Mary's Hospital staff at Astoria elected F. H. Vincil president and M. H. Smith secretary.

Mantoux Tests. Rural district pupils in Wasco County were given opportunity to have the Mantoux test early in November. Tests were given under the sponsorship of the County Public Health Association.

Research Grant. The University of Oregon has been given a grant of $400 for investigation of sinus disease problems by the American Academy of Ophthalmology and Otolaryngology.

Ennis Keizer has been appointed coroner of Coos County to fill the position left vacant when his father died a few hours after being elected to the position.

G. S. Newsom has moved from Klamath Falls to Independence, where he will take over the offices recently vacated by Ivan Bennett.

Chas. E. Phelps of Portland has purchased the equipment and practice of the late L. A. Bollman of Dallas.

WASHINGTON

Clancy Writes Scenario. Frank Clancy, formerly of Seattle, now director of the Bureau of Investigation for American Medical Association in Chicago, has written a movie scenario based on facts unearthed by his department and titled "Exposure." Through efforts of an old boyhood chum now with M-G-M, the script has been purchased by that organization and plans are under way for production. It should prove to be good publicity of the fakery of the patent medicines.

Sanitarium Improved. A new sewage disposal plant has been installed at the Lewis County Rock Creek sanitarium. The plant is of the septic tank-filter bed type. New walks have been built and the grounds have been improved by clearing, grading and the addition of shrubs and flower beds. Labor was furnished by W. P. A.

Hospital Meeting. Physicians of King and Pierce Counties met at Suburban Hospital, Auburn, on October 12. Tracy Buerfeldt of Tacoma addressed the group on the subject of allergy. This group is made up of those serving the suburban territory between Tacoma and Seattle.

County Officers Change. J. P. Mooney has resigned as health officer of Kittitas County and has been replaced by S. M. Wendt. R. J. Skaife of Colfax has resigned as health officer of Whitman County, after holding the position for twenty years. No successor has been appointed. Roscoe W. Smith has asked the county commissioners to relieve him of his position as medical director of Blue Mountain Sanitarium and surgeon for Walla Walla County.

Mantoux Test at Shelton. All Shelton High School students who requested it were given the Mantoux test in November. The work was part of the educational program of the State Tuberculosis Association and the Mason County Antituberculosis League.

Fellowships in American College of Surgeons. E. A. Nixon and D. O. Kraabel, of Seattle, W. A. Niethammer of Tacoma, and Gerald C. Kohl of Sumner were elected to fellowship in the American College of Surgeons at the Philadelphia meeting. Nixon was in addition given certificate of merit for excellent preparation of material.

Thurston County Health Council. The Public Health Council of Thurston County was organized October 14 at a meeting held in the Government Hotel, Tenino. B. D. Holland, county health officer, was elected president, Mr. L. B. Brown, vice-president, Miss Grace Black, secretary-treasurer. S. M. Creswell of Tacoma addressed the group.

Surgeon Publishes. Alexander Hamilton Peacock of Seattle has recently published a volume entitled "Globe Trotting with a Surgeon," an account of his 1934 trip around the world.

Physician Rescues Woman. Charles R. Castlen, formerly of Seattle, recently made a spectacular rescue of a woman whose clothing caught fire in the lobby of a Los Angeles hotel.

Physician Injured. H. F. Jessup, of Sequim, suffered a fractured patella in a recent highway crash near Port Angeles.

A. S. Needles has taken over the practice of George Pool at Yelm.

Harold Marks, who recently completed interneship in Spokane, has opened an office in Palouse.

Sheldon Bajema has taken over the practice of Marion Le Cocq at Lynden.

Nathaniel E. Beaver, formerly of Providence, Rhode Island, has opened an office in Walla Walla.

H. W. Shyrock, formerly of Seattle, has moved to Northport, where he will practice.

IDAHO

Clinics and Public Meetings. Under the sponsorship of Idaho State Medical Association, a series of clinics for the profession and lectures open to the general public have been held at Pocatello, Boise, Lewiston, Moscow, Coeur d'Alene and Twin Falls. These meetings, addressed by A. J. Kendal, A. F. Abt and G. C. Richardson of Northwestern University, were well attended and created a great deal of interest among lay as well as professional listeners. The success of the program has prompted the desire to have similar meetings at intervals in the future.

North Idaho District Society held a meeting at Lewiston, October 22, which was addressed by Drs. Potter, Blackford, Dwyer and Haven of Virginia Mason Clinic of Seattle.

C. E. Carver of Emmett is remodeling the building in which his office has been located, putting in equipment for a seventeen bed hospital as well as new heating and ventilating equipment.

Fellowships in College of Surgeons. Russel T. Scott of Lewiston and Charles B. Beyner of Twin Falls were granted fellowship in the American College of Surgeons at the Philadelphia session.

J. Vincent Foley has opened an office in Coeur d'Alene. He has recently resigned from the medical corps of the army.

J. W. Wurster has returned to Buhl after medical education and interneship in Chicago. He will be associated with E. L. Berry.

W. C. Smail, who recently completed training in Chicago, has settled in Meridian to practice with L. E. Jewell.

Kootenai County Hospital was approved by the voters in the recent general election and plans are being rushed for an early start of construction.

OBITUARIES

Dr. Alphonso N. Codd of Spokane, Wash., died in that city October 31, aged 42. His death was due to pneumonia and its sequelae. Dr. Codd was a member of a widely known pioneer family and was born in Colfax in 1894. He received his preliminary education in Gonzaga and was given his medical degree from Jefferson Medical College, Philadelphia, in 1919. Following his graduation he spent four years in training for his specialty, otolaryngology. His training included work with the bronchoscope under Chevalier Jackson. He was a member of the American Academy of Ophthalmology and Otolaryngology.

Dr. Thomas L. Catterson, aged 79, died at his home in Spokane, Wash., on October 20. He was born in Geneva, N. Y., in 1857, and received his education at University of Michigan and Wayne University College of Medicine. His medical degree was granted from the latter in 1887. He opened his office in Spokane in 1887, at a time when the population of that city was one thousand, and practiced until two years ago. He was one of the first to start organization of the Spokane County Medical Society. He served as county physician for a time and later was president of the board of health.

Dr. Randolph L. McCalla of Boise, Idaho, died October 10, aged 40. He was born in Salt Lake City in 1896, but spent his youth in Boise. He studied medicine at Harvard University and Columbia University, receiving his degree from the latter in 1920. He practiced with his father in Boise for a time, then went to California, where he became assistant professor of medicine at University of California. Five years ago he resigned to accept a position on a plantation in Hawaii, where he worked until a year ago, at which time he returned to Boise.

Dr. Arthur E. Southward, of Seattle, Wash., died October 23, aged 62. He was born in New York City in 1873 and in 1896 graduated from Bellevue Hospital Medical College. During the Klondike gold rush he traveled from New York to Nome as ship's surgeon. Practicing in Nome, while it grew from a small collection of shacks to a city of thirty thousand, he became well acquainted with many famous characters of the North. He came out in 1911 and after short periods of practice in Algona and Auburn he moved to Seattle.

Dr. George A. Downs of Spokane, Wash., died at Connersville, Ind., Oct. 18, 1936, following operation on spinal cord, aged 59 years. He was born in Indiana in 1877. After graduating from Purdue University he entered the medical department of University of Michigan, from which he obtained his degree in 1902. In 1903 he located for practice in Spokane which he continued until a year ago, when ill health caused him to return to his boyhood home. For many years he was in general practice, but during the last ten years devoted much of his time to neurosurgery. He was held in high esteem by his fellow practitioners.

Dr. Walter T. Woolley of Seattle, Wash., died suddenly November 10, of cerebral hemorrhage, aged 59. He was born in Illinois in 1876 and graduated from Harvard University Medical School in 1904. He came to Seattle in 1905 and had been in active practice constantly. At the time of his death he was chief examiner for the New York Life Insurance Company in this district. He was held in high respect by many medical and laymen friends.

Dr. W. Owen Wisner, of Spokane, Wash., died October 17 of pneumonia, aged 71. He was born in Nebraska in 1865 and received his medical education at University of Nebraska College of Medicine, where he graduated in 1892. He came to Spokane in 1903 and had been in practice constantly until about a year ago, at which time he accepted a position at the custodial school at Medical Lake.

Dr. Russell C. Keizer, of North Bend, Oregon, died November 4 of cerebral hemorrhage. He was 52 years of age. The accident occurred a few hours after it had become certain that he had won reelection to the office of coroner of Coos County. Dr. Keizer was born in 1884 and received his degree in medicine from University of Oregon Medical School in 1918. He has practiced in North Bend continuously since graduation.

Dr. Samuel W. Hobbs, of Issaquah, Wash., died October 27 in a sanitarium in Seattle, aged 60. He was born in Storm Lake, Iowa, in 1876, and received both his arts and medical education at the State University of Iowa College of Medicine, where he was given his degree in 1901. He was a member of the faculty at Iowa for a number of years and came to Issaquah fifteen years ago. Ill health forced his retirement in 1931.

Dr. John K. Stewart, of Tacoma, Wash., died October 21, aged 67. He was born in 1868 and received his medical education at Hahnemann Medical College, where he graduated in 1910. He had formerly practiced in Hoquiam and Seattle, having moved to Tacoma only two years ago. During the World War he was in charge of the Hospital at Fort Wright, Spokane.

Dr. Justus S. Lunger, of Seattle, Wash., died October 8 of coronary disease, aged 71. He was born in 1865 and received his medical degree from Cleveland Medical College in 1891. He had practiced in the University district of Seattle for the past twelve years.

Dr. William L. Freeman, of Tacoma, Wash., died November 17, aged 80 years. He was born in Iowa in 1856 and received his medical degree from the Missouri Medical College in 1882.

REPORTS OF SOCIETY MEETINGS

OREGON STATE MEDICAL SOCIETY

MINUTES OF THE SIXTY-SECOND ANNUAL MEETING OF OREGON STATE MEDICAL SOCIETY HELD AT THE DALLES, OREGON, OCTOBER 8-10, 1936.

HOUSE OF DELEGATES

First Session

Thursday, October 8

The opening session of the House of Delegates was called to order by President G. A. Massey at 7:30 a.m. at The Dalles Hotel.

On roll-call, the following members of the Council were present:

G. A. Massey, president; W. J. Weese, first vice-president; J. C. Vandevert, third vice-president; M. L. Bridgeman, secretary; Councilors C. E. Sears, Blair Holcomb, C. E. Hunt, C. T. Sweeney, E. D. Lamb, Thompson Coberth, and H. A. Cary; J. H. Fitzgibbon, delegate to the American Medical Association.

The following delegates were present:

W. T. Johnson of Corvallis, Central Willamette Medical Society; R. J. Pilkington of Astoria, Clatsop County Medical Society; F. G. Swedenburg of Ashland, Jackson County Medical Society; E. L. Zimmerman and L. S. Kent of Eugene, Lane County Medical Society; C. W. McCain of Hood River, Mid-Columbia Medical Society; G. L. Boyden, A. B. Dykman, C. P. Wilson, Q. R. Lupton, R. B. Adams, F. B. Zener, Stanley Lamb, F. R. Mount, and A. G. Bettman of Portland, Multnomah County Medical Society; H. A. Dowd and R. M. Waltz of Salem, Polk-Yamhill-Marion Medical Society; David Robinson of Tillamook, Tillamook County Medical Society. The executive secretary was also present.

President Massey announced the appointment of the following committees:

Credentials—M. L. Bridgeman, chairman; H. A. Dowd, C. W. McCain.

Resolutions—W. T. Johnson, chairman; A. G. Bettman, F. G. Swedenburg.

New Business—C. E. Hunt, chairman; Thompson Coberth, C. T. Sweeney, Stanley Lamb, C. E. Sears.

Unfinished Business—David Robinson, chairman; E. H. McLean, J. C. Vandevert.

M. L. Bridgeman, chairman of the Committee on Credentials, reported that, in the absence of the regularly elected delegates from certain component societies, certain members were present and eligible to be seated. On motion duly made and seconded, E. H. McLean of Oregon City, Clackamas County Medical Society, and I. C. Brill of Portland, Multnomah County Medical Society, were seated by vote of the House.

On motion duly made and seconded, it was voted to dispense with the reading of the minutes of the last annual session, the same having been printed in the December, 1935, issue of Northwest Medicine.

President Massey announced that it was the duty of the House to select the Committee on Nominations. The following were nominated: C. E. Hunt, E. D. Lamb and F. R. Mount. They were duly elected.

Communications

A letter from the Medical Library Association requesting assistance in obtaining adequate appropriations for the Army Medical Library and its Index-catalogue was read. The letter was referred to the Committee on Resolutions.

A letter and memorandum from W. C. Woodward, Director of the Bureau of Legal Medicine and Legislation of the American Medical Association was read. These communications dealt with recent efforts of the Association to resolve differences concerning the deductibility of automobile expenses in the computation of federal income taxes by physicians which had developed between members of the Oregon medical profession and the Collector of Internal Revenue of the district. There was considerable discussion concerning the difficulties of obtaining proper deductions of automobile expenses. The suggestion was made that physicians use charge accounts for all such expenses, in order to facilitate the establishment of amounts expended.

COMMITTEE REPORTS

Report of Secretary

Your secretary presents the following report concerning the principal activities of the Society since our last annual session, as well as a summary of the subjects of importance dealt with by the Council and its Executive Committee.

The improvement in general economic conditions during the past two years has produced a corresponding gain in receipts from dues. Receipts for the first eight months of 1936 were slightly higher than during the similar period of 1935. It is anticipated that total receipts for the year will approximate the predepression level in spite of the fact that the annual rebate of $5 to active members, making net dues $15 instead of $20 per year, has been continued.

This gratifying condition is due in part to the more prompt payment of dues by older members but more largely to an increasing number of new and reinstated members. Our membership has now reached the highest figure in our history as is apparent from the following table:

	Owing prior to 1935 but paying	Paid 1935	Paid 1936	Totals
Active	7	71	594	672
Junior		8	34	42
Associate		1	13	14
Life				12
Honorary				17
Non-Resident		2	6	8
Total	7	82	647	765

Worthy of special comment is the increasing tendency of young physicians just entering practice to affiliate with their local and state societies.

The Council and its Executive Committee have devoted themselves assiduously to their duties and have acted upon a wide range of matters of vital importance to the membership. The Council met each month, except during August, and during February held two meetings. The Executive Committee usually met at least biweekly, and when necessary held weekly, and occasionally semiweekly meetings.

In accordance with the established policy of recent years, the Council held three of its regular meetings outside of Portland, one being held at Eugene, one at Klamath Falls, and one at La Grande. In addition, individual members of the Council were assigned to present various matters of policy to several of the component societies. These meetings with the local societies appeared to be valuable in developing increased understanding among the membership concerning the purposes and policies of the state society.

The following summary indicates the chief actions of the Council and its Executive Committee since the last annual session:

ACTIONS OF THE COUNCIL

1. Voted to adopt the recommendation made by the general society at the Gearhart session that the expenses of the Delegate to the American Medical Association incurred in the discharge of his duties be hereafter paid by the Society.
2. Authorized the reprinting of 1000 copies of the Minimum Industrial Fee Schedule.
3. Authorized the appointment of an advisory committee to the Oregon Supervisor of the Federal Survey on Disabling Illness.

4. Voted to go on record as favoring the general type of legislation proposed by the State Board of Health to strengthen the Sterilization Law, but not formally to endorse the proposed amendments because of lack of sufficient time to weigh the effects of the numerous detailed provisions.

5. Voted to go on record as favoring the strenuous prosecution of measures designed to eliminate the hazard of bubonic plague, to endorse the proposal of the State Board of Health that the Legislature appropriate $3,000 to supplement the sum of $6,000 offered by the U. S. Public Health Service to institute a program of rodent control in Eastern Oregon, and to urge Governor Charles H. Martin to support this proposal.

6. Appointed a special committee to study the proposal of the American Red Cross calling for the establishment and operation of a statewide system of highway first-aid stations.

7. Authorized that publicity be given the new radio program of the American Medical Association over the NBC network through a series of weekly newspaper announcements.

8. Authorized the Executive Committee to expend such funds as they deem proper for placing "Hygeia" in the schools of the state.

9. Adopted a resolution expressing appreciation of the services of Arthur J. Cramp, Director of the Bureau of Investigation of the American Medical Association, recently retired.

10. Authorized the sending of telegrams to the President and the Director of the Works Progress Administration urging approval of the Wolf Creek and Wilson River projects.

11. Authorized the employment of legal counsel to advise the component societies as to the correct interpretation of the various provisions embodied in the established regulations of the Oregon State Medical Society and the American Medical Association as well as their own, and the proper procedure to be followed in applying these regulations.

12. Approved the appointment of Frank R. Mount, Raymond E. Watkins and James W. Rosenfeld to represent the Society on the advisory committee to assist the State Board of Health in carrying out the public health provisions of the Federal Social Security Act.

13. Authorized the Committee on Public Policy to seek the assistance of the American Medical Association in the preparation of a new medical practice act in order to eliminate the many deficiencies in the present law.

14. Adopted a "Statement Concerning the Enforcement of the Principles of Medical Ethics" and directed that a copy of this statement and an explanatory letter be sent to each member, together with a copy of "The Principles of Medical Ethics" and a copy of the interpretative decisions of the Judicial Council of the American Medical Association dealing with contract practice and related matters.

15. Voted to request Ralph A. Fenton to obtain a definition of the term, "free choice of physician," from the Board of Trustees of the American Medical Association.

16. Voted that the 1936 annual session be held at The Dalles on October 8, 9, 10.

17. Voted to urge the State Board of Control to provide additional state facilities for the care of the acute, and particularly of the convalescent and chronic tuberculous, the recommendations made to be based upon a survey of the needs and facilities now available for the care of these groups of tuberculous, to be conducted by a committee appointed by the President.

18. Adopted a resolution for submission to the House of Delegates of the American Medical Association, providing that the Council on Medical Education and Hospitals, before granting approval to hospitals for general interneships or residencies in the several specialties, shall first assure themselves that each and every staff member of any hospital under consideration for such approval is conducting his practice in accordance with the Principles of Medical Ethics and that such hospital is not granting special privileges to any of its members in the form of lower rates for patients of such staff members.

19. Adopted a resolution expressing confidence and appreciation of the activities of Morris Fishbein, Editor of the *Journal of the American Medical Association* and *Hygeia,* as a publicist on medical subjects of interest to the lay public .

20. Authorized the Committee on Public Policy to call a conference at Portland of all the physician candidates for the state legislature, the railroad and hotel expense incurred by the physician candidates to be paid by the Society.

21. At the instance of the Council of the Multnomah County Medical Society, requested the Board of Trustees of the American Medical Association, to send an official representative to address the recessed annual meeting of that society for the purpose of clarifying for its membership existing questions relating to unethical contract practice.

22. Authorized the use of the Society's headquarters and staff in connection with the annual meeting of the Pacific Northwest Medical Association at Portland.

23. Adopted a resolution for submission to the House of Delegates of the American Medical Association opposing the granting by the Federal Communications Commission of a single short wave frequency to any commercial concern for the purpose of emergency communication with physicians and favoring the allocation of frequencies for this purpose to individual local stations, and this only following the recommendation of the local medical society in the city concerned.

24. Authorized the removal of the Society headquarters to larger space on the Taylor Street side of the Medical-Dental Building in Portland, the rental to remain the same.

25. Voted that disapproval of illegal abortions be expressed in the strongest terms and that every possible assistance be afforded the State Board of Medical Examiners in their efforts to minimize this practice.

26. Voted to invite Olin West, Secretary of the American Medical Association, to make an address at The Dalles session on the subject of medical ethics.

27. Voted approval of the efforts of the Benton County Medical Society to eliminate unethical contract practice.

28. Voted to address a letter of commendation to Station KOAC at Oregon State College for its daily health broadcasts based upon material supplied by the Society.

29. Voted to request the Woman's Auxiliary to concentrate its efforts upon a wider dissemination of Hygeia and upon other matters vital to the welfare of the practicing physicians as outlined by the Liaison Committee.

30. Voted that the President appoint a special Committee on Information and Propaganda to prepare articles along broad lines of ethics and economics for the education of the medical profession and the lay public.

31. Voted to compliment the committee in charge of *The Medical Reporter* and to continue its publication for one year from July, 1936.

32. Authorized the reimbursement of the expense of members assigned to address component societies on matters of state society policy.

33. Authorized the Committee on Scientific Work to obtain two or three suitable guest speakers for the annual session.

34. Voted that the recommendation be made to the insurance carrier that the rate for $5,000-$15,000 limits of insurance covering roentgent ray and radium therapy be reduced from $150 per year to $60 per year and that the rate for insurance covering medical endothermy be increased 25 per cent over the present rate of $20 per year for $5,000-$15,000 limits.

35. Voted to contribute $100 to the campaign against the so-called Truthful Advertising Constitutional Amendment to be before the electorate at the November election.

36. Adopted a "Statement of Principles and Procedure for the Control of Contract Practice." (A copy of this statement accompanies this report.)

The summary reproduced above is ample evidence of the broad scope of the matters demanding consideration by the Council and its Executive Committee and of the carefully considered action taken in behalf of the medical profession and people of our state.

Finally, I take this opportunity to express my appreciation of the splendid cooperation accorded me by our officers, councilors, committeemen and executive secretary, as well as the membership as a whole. Serving as secretary is one certain way to gain an appreciation of the value of organized medicine and of the fine personalities of whom it is composed.

Morris L. Bridgeman,
Secretary

This report was referred jointly to the Committees on Resolutions and New Business.

Report of Treasurer

Your Treasurer submits the following report, showing the financial condition of the Society. The information presented herein was derived from the detailed report covering our most recent six months' accounting period ending June 30, 1936. This detailed analysis, prepared by Mr. C. T. Kronenberg, certified public accountant, will be submitted with this report.

GENERAL FUND

Receipts from members' dues continued to increase during the first six months of 1906. A total of $8,848.08 was received during this period. This figure exceeds the total receipts of $8,149.91 for the first six months of 1935, as well as the total receipts of $8,222.39 for the similar period of 1932, when annual dues were $20.

The current cash balance in the General Fund on June 30, 1936, was $4,815.73, plus a savings account of $547.77, or a total of $5,363.50. Bills payable, including expense items and turnovers of local society dues, totaled $1,231.49, leaving a net cash balance of $4,132.01. This net cash balance exceeds by $2,772.78 the net cash balance of $1,359.23 of a year ago.

MEDICAL DEFENSE FUND

Since 1933, when annual dues were in effect reduced to $15, the allotment of $3 per member per year to the Medical Defense Fund has been discontinued. Additions to this fund, therefore, depend almost completely upon interest earned on funds in savings accounts and securities. Owing to the satisfactory arrangements our members now enjoy in connection with their physicians' liability insurance, this fund is now seldom called upon, and then only in instances in which additional legal counsel may be needed in suits before appellate courts. During the six months period ending June 30, 1936, receipts included a turnover of $3 from members' dues received for 1932 and $406.39 earned on invested securities and savings accounts, or a total of $409.39. The only disbursement during the period was a safe-keeping fee of $8 arising from the care of Chile Bonds by the Trust Department of the U. S. National Bank of Portland. The cash balance in the savings account at the close of the period was $814.88.

INVESTED FUNDS

The invested funds of the General Fund on June 30, 1936, included securities costing $5,559.72. These securities had a market value of $5,739.06, or $180.34 greater than cost.

The invested funds of the Medical Defense Fund on that date included securities costing $19,762.10. The market value of these securities was $18,841.40, or $920.70 less than cost.

The invested funds of the Society are in good condition. With the exception of $2,000 of Chile bonds, all securities are now worth more than the cost and in general are yielding a higher income for the same security of principal than could be obtained from sources of investment now available.

In summary, it may be said that the financial status of the Society is excellent, both from the standpoint of proper balance between current receipts and expenditures and the position of its invested funds. There are probably very few professional societies of similar size with as adequate reserves. We are fortunate to be so well situated in view of the need for funds which may arise in the event that we are faced with the prospect of combatting revolutionary legislation, such as would result from a strong movement for the socialization of medicine.

Otis F. Akin,
Treasurer.

This report was referred jointly to the Committee on Resolutions and New Business.

Delegate to American Medical Association

As the minutes of the House of Delegates of the American Medical Association of 1936 have been published in *The Journal,* your delegate will not attempt to cover in detail the activities of the House, but will confine this report to matters of particular interest to the physicians of Oregon.

Preliminary to carrying out the instructions of the Council of the Oregon State Medical Society, your delegate visited the headquarters of the American Medical Association in Chicago for conference with Olin West, Secretary of the Association, and William D. Cutter, Secretary of the Council on Medical Education and Hospitals. These gentlemen were very courteous and appointments were made for appearance before the Board of Trustees and Council on Medical Education and Hospitals at Kansas City.

The headquarters building in Chicago has been enlarged by the addition of two stories and made more workable by many alterations. All physicians visiting Chicago should visit headquarters and become acquainted with the headquarters group and the work of the various councils and departments.

At Kansas City, your delegate appeared before the Board of Trustees and informed that body of difficulties in enforcement of medical ethics in relation to hospital association practice in this community. In the name of the Oregon State Medical Society and Multnomah County Society, the Board of Trustees was requested to send a representative to speak before the annual meeting of the Multnomah County Society for the purpose of instructing that body in medical ethics and problems confronting medical organizations throughout the country. The Board of Trustees granted that request and chose Morris Fishbein, Editor, to make the trip to Portland.

At a meeting of the Council on Medical Education and Hospitals, your delegate discussed conditions in Oregon in relation to the education of internes and residents in approved hospitals, and read the resolution relating to approval of hospitals and internships and residents which had been passed by the Council of this society. This resolution, a copy of which is attached, was introduced by title at the general session of May 11 and referred to the Committee on Executive Session. After approval by the committee, the resolution was discussed in the House of Delegates where it received unanimous approval.

The Oregon resolution on "Opposition to Granting a Single Short Wave Frequency to Commercial Concerns for Emergency Communication to Physicians" was introduced and unanimously passed by the House of Delegates. A copy of this resolution is attached (omitted for lack of space).

Other matters of particular interest are as follows:

Speaker of the House of Delegates, Nathan B. Van Etten, addressed the House and urged all delegates to feel their share of responsibility for the attitude of the American Medical Association in matters of general policy. Among other pointed remarks, he said: "Dignified aloofness is stupidity dictated by laziness. The medical citizen of this type deserves nothing from our people and his profession will sink into economic slavery if he is allowed to direct it."

President James S. McLester reviewed the year's accomplishments and urged the Association to continue its vigilance and untiring efforts to guide the American profession through the difficulties ahead, mentioning particularly the ill-advised attempts of social scientists, economists and self-appointed reformers to alter the status of scientific medical practice.

The late J. Tate Mason, President-Elect, was unable to attend because of illness. His message was read by Brien T. King, of Washington. Dr. Mason was later installed as President in absentia and suitable notification of his installation and good wishes of the association sent to him. His death a few weeks later caused great sorrow to all his friends throughout the nation.

The report of Olin West, Secretary, showed the Oregon State Society to have a membership of 742 for 1936, compared with 652 for 1935. Of this number 442 are Fellows of the Association, showing that a majority of our members have attended meetings of the national body. The fact that there are 1308 Oregon physicians listed in the thirteenth edition of the A. M. A. directory shows room for further increase in membership in our local organization.

BOARD OF TRUSTEES

The Board of Trustees reported an increase in paid circulation of the Journal of 4,344 over the year previous.

Special Journals published by the Association showed a gain in circulation but a financial loss of $28,004.70 for 1935.

Hygeia has shown definite expansion and widespread use in schools and as a source of public health information, but is published at a financial loss. The Oregon State Woman's Auxiliary is to be commended for the part it has played in making Hygeia available to the students of our state.

The library has extended the scope of its package service and has maintained the quarterly Cumulative Index Medicus on a high plane. Requests from Oregon for package service have apparently not been numerous, because of the close relationship with the library of our own medical school and the excellent service which Miss Hallam and her associates have given the physicians of Oregon.

COUNCIL ON PHARMACY AND CHEMISTRY

The Council has completed thirty years of admirable service. Its work with new drugs and methods of therapy should be well known to every physician and would make an excellent subject for presentation before component societies too many of the members of which are receiving unsound advice from detail men of commercial concerns interested in promoting the sale of low grade pharmaceutical preparations.

COUNCIL ON PHYSICAL THERAPY

This group has worked for ten years analyzing, investigating and reporting on physical therapy methods and equipment. Physicians interested in physical therapy or those contemplating purchase of physical therapy apparatus will do well to familiarize themselves with the work of the Council and to consult the publications of the Council before investing in apparatus which may not be of value.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

The Bureau presented a lengthy report of its work in connection with legislation, all of which has been covered in the Journal and in the numerous publications of the Bureau. Your delegate wishes to emphasize the importance of the work of this Bureau and to urge all members of our state organization to interest themselves in the reports.

BUREAU OF MEDICAL ECONOMICS

The Bureau has made extensive studies of all matters involved in Medical Economics and is in a position to supply information to anyone interested in studying sickness insurance, contract practice, workmen's compensation, group practice, prepayment plans, group hospitalization, care of the indigent sick and many other matters of equal importance. The value of every physician becoming familiar with these matters and to basic principles involved can not be over emphasized, if we are to work out our problem by sound judgment rather than emotional reactions.

BUREAU OF HEALTH AND PUBLIC INSTRUCTION

This group has expanded its work, added to its personnel, and is continuing the radio programs and cooperating with government agencies and lay organizations.

BUREAU OF INVESTIGATION

Arthur J. Cramp, for nearly thirty years Director of this Bureau, was compelled to retire because of ill health. Frank J. Clancy, an alumnus of our local medical school and a member of Washington State Medical Association, has been appointed Director of the Bureau. The work which is familiar to all physicians will continue under supervision of Dr. Clancy.

BUREAU OF EXHIBITS

Exhibits at Kansas City were of such a character as to excite the admiration of all who attended. The new Kansas City Municipal Auditorium provided adequate spaces and those inclined could have spent most of the week visiting exhibits of value. Oregon was well represented among the exhibitors.

AUDITOR'S REPORT

The auditor's report showed the association to be in sound financial condition. Details have been published in *The Journal.*

JUDICIAL COUNCIL

This hard working body, among other matters, "called attention to the necessity of closely following proper procedure in the conduct of trials based on charges against members of component and constituent organizations and of the necessity of coordinating the governing by-laws of the state association and its component societies." Your delegate, in accordance with the recommendation of the Council, brings this portion of the report to the serious attention of the officers and representatives of the component societies of the Oregon State Medical Society.

The Judicial Council in commenting upon group hospitalization reminds us that "whether the scheme is or is not judicially or economically sound is not the problem of our organization, but it is our business to see that the furnishing of medical service is not included in the sale of insured hospital accommodations. This can be done, if a strong stand is taken and maintained by the organized medical profession, which must keep a watchful eye to see that medical care is not initially or later included when the usual sales efforts demand increased benefits to purchasers."

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The Council has called to the attention of all approved hospitals the resolution of the House of Delegates of the Cleveland session, expressing the opinion that physicians on the staff of hospitals approved for interne training should be limited to members in good standing of their local County Medical Societies.

A survey of medical schools has been completed, eighty-seven schools in the United States and Canada being visited. An attempt was made to visit schools of osteopathy, but the Associated Colleges of Osteopathy refused to permit inspection by the Council.

In the last eight years, about 3000 different hospitals have been visited one or more times by the Council inspectors. Other inspections have included schools of occupational therapy, schools for the training of technicians in physical therapy, and schools for the training of technicians in clinical laboratories.

The Council has also expressed its approval of examining boards in the following specialties: dermatology and syphilology, orthopedic surgery, pediatrics, psychiatry and neurology, and radiology, approval of an examining board in internal medicine has recently been added.

A survey of the graduate training of physicians is to be undertaken soon. The work of the Council has been so heavy that it appears necessary to add an additional hospital inspector.

A resolution introduced by Wm. R. Brookshor of Arkansas, condemning as unethical the listing of physicians by specialty in directories published by commercial concerns, was referred to the Judicial Council and after their endorsement was unanimously passed by the House of Delegates.

Amendments to Constitution and By-Laws were read, also names of newly elected officers (omitted for lack of space).

April 1, 1936

RESOLUTION APPROVED BY THE COUNCIL OF THE OREGON STATE MEDICAL SOCIETY FOR SUBMISSION BY DR. JOHN H. FITZGIBBON TO THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE KANSAS CITY SESSION

Whereas, it is the function of the Council on Medical Education and Hospitals to supervise the undergraduate instruction and hospital training of young physicians; and

Whereas, a vital part of training young physicians should be to instill in them sound ethical standards; and

Whereas, in many hospitals of the country younger physicians serving as internes or residents are under the tutelage of physicians who are obtaining patients through solicitation and other unethical practices; and

Whereas, many hospitals are granting those unethical staff members special privileges in that the hospitals are supplying service to the patients of these staff members at charges below those made to the patients of ethical staff members, the effect of which practice is to subsidize these staff members at the expense of the patients of ethical physicians; and

Whereas, these unethical practices by staff members and by the hospitals themselves tend to destroy the professional idealism of young physicians serving as internes or residents and soon to enter practice, therefore, be it

Resolved, that the Council on Medical Education and Hospitals, before granting approval to hospitals for general internships or residencies in the several specialties, shall first assure themselves that each and every staff member of any hospital under consideration for such approval is conducting his practice in accordance with the Principles of Medical Ethics, and that such hospital is not granting special privileges to any of its staff members in the form of lower rates for patients of such staff members.

John H. Fitzgibbon,
Delegate

Drs. Sears, Bettman and Sweeney spoke in commendatory terms of the service rendered by Dr. Fitzgibbon as delegate and told of the high esteem in which he was held by the House of Delegates of the American Medical Association.

Dr. Vandevert discussed the necessity of greater activity in politics by physicians and the need of additional physicians in the state legislature in order to defeat proposals inimical to scientific medicine referred to in Dr. Fitzgibbon's report.

The report was then referred jointly to the committees on Resolutions and New Business.

Committee on Scientific Work

The Committee on Scientific Work has had as its major object, the planning of the scientific program and exhibit for the sixty-second Annual Session.

A continuation of the type of program started with the sixtieth Annual Session was agreed upon and all papers were placed in one general session, rather than to split them into medical and surgical or into specialties. A large number of papers were offered, many of which had to be turned down, due to the fact that the essayist was late in entering his paper. A few papers were solicited, due to the fact that the author had appeared before a local society and his paper had been favorably acclaimed.

In choosing the guest speakers, it was felt that men who would be of the greatest interest to the general physician should be chosen. It was concluded that the two selected would be of general interest to the specialist as well as the general practitioner.

The committee feels that we are fortunate in having Joseph Tamura, who spends his summers in The Dalles, appear on the program, and through the assistance of Dr. Griffith we were able to secure him.

The committee had anticipated that the meeting of the Pacific Northwest Medical Association in Portland so near to The Dalles session in many ways might be influential in reducing the number of exhibitors and in lessening interest in this year's meeting.

During the year many of the local societies have contacted the committee for speakers and these have been furnished. It is hoped that the local societies will feel free to call on the committee for speakers in the future.

The committee feels indebted to the executive secretary, Mr. Clyde C. Foley, who was very willing and helpful in the many details of the program arrangement and management of the scientific exhibits and thanks is hereby offered to the many individuals who were consulted for their help.

Morris L. Bridgeman,
Chairman

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Public Policy

Owing to the fact that the past year was not a legislative year, our committee has not been pressed with matters of legislation affecting the medical profession and the public health. Nevertheless, numerous situations have arisen which demanded careful attention.

Chief among these were the debates on sickness insurance in our high schools, colleges and universities. As you will recall, the National University Extension Association Debate Committee selected as the subject for debate during 1935-1936 the proposal: "Resolved, That the several states should enact legislation providing for a system of complete medical services available to all citizens at public expense." Following this action, the subject of compulsory sickness insurance was debated by more than 100,000 students in high schools, colleges and universities in various parts of the United States. This subject was widely debated among the schools in our state.

Through society headquarters, our committee arranged to make available to debaters the negative material prepared by the Bureau of Medical Economics of the American Medical Association. Several hundred pamphlets were distributed to debaters and coaches. In addition, an extensive correspondence was carried on in response to numerous inquiries concerning the viewpoint of the medical profession of Oregon on this question.

More recently, the United States Department of Education selected Portland as one of the cities in which it would conduct so-called public forums. One of the topics selected for discussion was socialized medicine. The local administrator of the Portland Public Forum requested the cooperation of the Multnomah County Medical Society in presenting the affirmative and negative arguments on this question. Our committee cooperated with the Multnomah County Medical Society in assigning speakers to discuss socialized medicine and in providing these speakers with information, particularly such as would show the evils of this form of medical practice.

The course of these discussions quickly revealed that the medical profession was at a disadvantage in appearing on the platform with the leader of the forum and for the most part espousing the negative side of the question. For this reason, the physicians who participated in the last few discussions were advised to remain in the audience and present the evils of socialized medicine in an informal manner in the course of the discussion from the floor which followed the presentation of the subject by the forum leader. It was clear that these latter tactics were more advantageous in that by ceasing to appear on the platform and presenting a negative point of view at the outset, the medical profession was in a position more effectively to puncture the balloon inflated by the proponents of socialized medicine. There is no doubt that this initial experience in combating state medicine provided valuable information for the determination of the proper strategy to be employed by the medical profession in dealing with this problem in the future.

We are convinced that the time has arrived when it is desirable for each component society to appoint an active committee whose members will inform themselves concerning the arguments for and against socialized medicine and who will be available at all times to present our viewpoint on this question. Such action is particularly imperative because it is likely that this subject will become a topic of increasing interest on the part of the various lay organizations in every community.

Our committee is planning to have several bills introduced at the coming session of the state legislature. One of these will be an amendment to the Doctors' Title Act enacted at the 1935 session which requires that each practitioner of the healing art shall indicate in all announcements to the public the particular branch which he is licensed to practice. Several cult practitioners have succeeded in evading this law by adopting assumed names for the advertisement of their practice. The committee proposes to amend the law to include clinics, institutions and other assumed names, as well as individual practitioners.

The committee also plans to introduce a new medical practice act which will eliminate numerous defects in the existing law. Among the defects which need to be corrected is the provision in the present law which permits a physician to obtain a jury trial in the Circuit Court, following the revocation of his license by the State Board of Medical Examiners. This procedure is inconsistent with prevailing legal theory concerning appeals from the decisions of administrative boards, under which an appeal to the courts is regarded as a judicial review to ascertain whether the administrative board has granted an impartial hearing and has acted in accordance with the law. Under the present act, a jury of laymen may ultimately pass upon all the detailed matters which led to the revocation of the license of a physician. This unsound situation is one of the major factors in rendering ineffective the enforcement of the present medical practice act.

The committee has obtained the approval of the Council for a conference of the physician-members of the state legislature in Portland prior to the 1937 session. As pointed out in previous reports, the splendid cooperation of the physicians in the legislature has been the most potent factor in our recent success in obtaining the passage of desirable public health legislation and in the defeat of undesirable measures. We are hopeful that there will be a relatively large representation of physicians in the coming session. The outlook is especially hopeful, inasmuch as five physicians appear to have an excellent chance of election to the House of Representatives, while the presence of one holdover physician-senator is assured.

The committee wishes to call the attention of physicians to the so-called "Truthful Advertising Constitutional Amendment" which will be on the ballot in November. This amendment is one of the most vicious initiative measures which has yet been proposed and its adoption would nullify existing regulation of advertising in the Medical Practice Act, as well as in numerous other professional practice acts. This amendment would also destroy existing safeguards which protect the public against misleading, immoral and indecent advertising, particularly in relation to contraception, and the treatment of venereal diseases. Physicians are urged to do everything possible to aid in the defeat of this amendment.

Thomas Wynne Watts,
Chairman

This report was discussed by Drs. Fitzgibbon, Adams, Zener and Johnson, particularly from the standpoint of the tactics necessary to meet propaganda in the state for socialized medicine and prepayment schemes of medical care.

Dr. Holcomb suggested that the Committee on Resolutions consider the adoption of a recommendation that each component society devote at least 50 per cent of its programs to the education of its membership in current trends in medical economics.

The report of the Committee on Public Policy was referred jointly to the Committees on Resolutions and New Business.

Committee on State Industrial Affairs

The work of this committee has been somewhat handicapped during the past year by changes in personnel. Dr. Tharaldsen, the chairman, resigned in May and the present chairman was appointed in his place. The vacancy in the committee was filled by the appointment of A. M. Webster, past president of the society, who was chairman of this committee for several years. Dr. Webster has been appointed vice-chairman of the present committee.

There has been some discussion among the membership concerning the status of the agreement under which the State Industrial Accident Commission is compensating physicians on a basis of our Minimum Industrial Fee Schedule, less a discount of 25 per cent. One component medical society has requested that steps be taken to obtain the elimination of the discount. This subject was discussed by the Commission and our committee on September 13, 1935. We quote from the 1935 report of the committee setting forth the viewpoint of the Commission on this question as expressed at that conference:

"The representatives of the Commission stated that the protection of the Workmen's Compensation Act had been extended to workers employed on SERA projects, although legally such workers were not employees, but wards of the various governmental units. They stated that, while it had been desirable to provide such workers with this protection, an extra burden had been thrown upon the State Industrial Accident Fund by reason of the fact that many of these workers were below the physical standard ordinarily acceptable to private industry. They indicated that the Commission would be very well satisfied if the books could be closed on this class of coverage without the necessity of their reaching into the contributions derived from normal employment. The representatives of the Commission pointed out that the medical profession had benefited by this policy of bringing SERA workers under the Act, because otherwise physicians would have treated these workers as charity patients or on the basis of allowances much below the compensation paid the doctors from the State Industrial Accident Fund. They expressed the opinion that a comparison of medical aid costs during this period of emergency relief employment as against those previously prevailing would not reflect a lower medical cost per claim upon which might be based a reduction in the existing discount of 25 per cent."

Under date of September 9, 1936, we addressed the following letter to the Commission (omitted for lack of space).

Under date of September 19, 1936, we received the following reply from the Commission (omitted for lack of space).

The salient features of the present situation may be summarized as follows:

1. The cost of the services of physicians per accident case has increased from $7.83 to $11.17 during the period since July 1, 1934, when the existing arrangement was placed in effect. This increase is not necessarily due to the increases in the amounts paid for specific items of professional service. A part of this increase in cost per claim is undoubtedly due to increased employment in the more hazardous industries which has produced an increase in the severe class of injuries thus necessitating, on the average, a greater amount of medical care per case.

2. The Commission apparently is of the opinion that the increase in the compensation of physicians under the prevailing arrangement has not operated to reduce materially the extensive daily dressing of relatively minor injuries over extended periods.

3. The Commission maintains that it is not in reality receiving any discount from physicians but that its fee schedule is 25 per cent below our Minimum Industrial Fee Schedule.

4. The Commission has pointed out that its emloyees received a 25 per cent reduction in salary in 1933 and that only 10 per cent of this reduction has been restored.

5. The member of the Commission who represents the employers is opposed to any increase in costs which might necessitate further increases in employers' contributions to the Industrial Accident Fund, inasmuch as substantial rate increases have already been made.

6. The Commission is willing to continue the present arrangement indefinitely and claims that there is no great demand among the medical profession for any change at this time.

In view of the declarations by the Commission we are anxious to obtain instructions from the House of Delegates as to the policy which the Committee should pursue in dealing with this question. The relations between the Commission and the medical profession are now very friendly, due in large part to the policy of the past few years of discussing frankly in conference the various problems which have arisen. It should also be pointed out that in dealing with the problem of contract practice, we shall need the cooperation of the Commission in confining this form of practice to situations in which the presence of unusual factors makes it necessary.

Early this year a report reached the committee that the Washington Department of Labor and Industries had adopted a policy denying injured workers, resident in Oregon but under the protection of the Washington Compensation Law, the right to receive medical care from Oregon physicians and hospitals of their choice. On March 24 the committee took up this matter by correspondence with the Washington Department of Labor and Industries, the Oregon State Industrial Accident Commission, Governor Charles H. Martin, The Oregon State Federation of Labor and several large employers. On April 14 we received information indicating that certain letters emanating from the Department to the effect that the police powers of the Department do not permit them to make expenditures from the Medical Aid Fund outside of the State of Washington were written by a subordinate employee and were in error. The Department further declared that it was not its intention to discriminate against Oregon physicians, provided that the injured workman meets certain requirements prior to the time when he reports to an Oregon physician for treatment. These requirements were stated as follows:

1. The patient must immediately report his accident to the Department of Labor and Industries at Olympia, Washington, and must report to a Washington physician for examination, initial treatment and report, prior to the time he transfers to an Oregon physician.

2. After reporting to a Washington doctor for first treatment, and after reporting his accident to the Washington Department, he may request the Washington doctor to transfer him to a physician in Oregon. After having complied with these requirements, the injured workman may report to the Oregon physician, who can institute treatment, and reports and bills covering treatment in this state will be given full recognition by the Washington Department.

3. In case of critical injury, the workman should be transferred to the nearest qualified physician and hospital, regardless of whether the physician and hospital be in Oregon or Washington. The Department of Labor and Industries will, however, protest any effort to move a critically injured workman a long distance in order that he may come under the care of his own family physician in this state, and while making the transfer pass through localities in Washington where there are qualified doctors and hospitals. The initial and emergency treatment in these cases should be rendered in the state of Washington, but after improvement has taken place so that the workman may be moved without danger, he may then be moved to a point nearer his home and transferred to an Oregon physician.

4. The Washington Department will not recognize an Oregon physician, nor his reports prior to the time the workman has established his claim in the State of Washington and prior to the time he has been first examined by a Washington physician. In other words, following injury, the workman must report to a Washington physician in the vicinity of the place of injury, and he may then request that transfer be made to an Oregon physician nearer his home.

5. There is no special form required by the Washington Department to effect a transfer from a Washington physician to an Oregon physician by patients who reside in Oregon, but a verbal request may be made to the first examining physician in Washington, and after the Washington physician has made the report that the patient has transferred, honored and recognized reports and bills from the Oregon physician, providing the workman is entitled to the benefits of the Washington law.

These requirements are, of course, much different in effect from the original report that the Washington Department of Labor and Industries was refusing to recognize our physicians in the treatment of Washington compensation cases. We can see no objection to these rules, as it would seem to be perfectly proper that the Washington Department should have the advantage of a report from a Washington physician, familiar with the law of that state, and thus be able to determine the merit of the workman's claim before he leaves the State of Washington. This policy is similar to that of the Oregon Industrial Accident Commission, except that the Oregon Commission does not necessarily require that an injured workman report for initial treatment to an Oregon physician.

It is probable that this recent situation in connection with Washington compensation cases arose in part from the extensive activity of Oregon medical contractors in the State of Washington, and perhaps to a legitimate desire on the part of the Washington medical profession to care for workmen injured in that state. The difficulty now appears to have been resolved in a reasonably satisfactory manner.

Another matter of importance which concerned the committee arose out of a suit filed by a member of our society against the State Industrial Commission to recover an amount for professional services in excess of the amount allowed by the Commission. While the amount of money involved in the suit was small, the question involved was of major import in relation to the existing arrangement with the Commission under which it uses our Minimum Industrial Fee Schedule as a base schedule and under which a Liaison Committee representing our society adjudicates individual disputes arising between the Commission and the medical profession. These provisions of the prevailing plan were adopted by the Commission at the request of our society as a means of establishing more satisfactory relations between the Commission and the physicians of the state. If physicians become unwilling to accept the decisions reached under this voluntary system and take appeal to the courts from the decisions so reached, it is obvious that much of the past efforts of our society in this field will be nullified. The committee is pleased to report that, following a conference with the physician in the case, he voluntarily withdrew his suit and agreed to resubmit the controversy to the Commission and our Liaison Committee for settlement.

The committee has recently received word through a member of the Commission that a number of employers wish to have the Workmen's Compensation Law amended at the coming session of the legislature to bring certain occupational diseases under the provisions of the Act. The Commission desires our cooperation in a survey of occupational diseases in the various industries of the state, in order that any amendments submitted to the state legislature may be based upon medical fact. The present law provides for compensation and medical care only in instances of injury, although in practice the Commission has often recognized claims based on occupational diseases because technically there was an accompanying injury of slight degree. However, the Supreme Court has ruled that the law does not cover occupational diseases with the result that numerous claims are now being brought directly against employers. It is to protect themselves against such claims that many employers desire the law amended. The Committee solicits an expression from the House of Delegates as to its attitude on the extension of the Workman's Compensation Act to include occupational diseases, as well as information which would be of assistance to the committee in dealing with this question.

THOMPSON COBERTH,
Chairman

Dr. Coberth, chairman of the Committee on State Industrial Affairs, spoke briefly concerning the subject matter of the report and stated that the committee desired to make an additional recommendation, namely, that Section 9 of Chapter VIII of the by-laws be amended so as to read as follows:

The Committee on State Industrial Affairs shall consist of six members, each of whom shall serve for a period of three years; provided that immediately following the adoption of this amendment, two members shall be appointed to serve for one year, two for two years, and two for three years. This committee, subject to instructions from the Council, shall represent the Society in all matters relating to industrial medicine and surgery.

E. D. Lamb, of the Committee on State Industrial Affairs, stated that members of the committee should serve for at least three years and that the committee should meet at least once a month with the State Industrial Accident Commission at Salem.

The report of the Committee on State Industrial Affairs and the proposed amendment to the by-laws were referred jointly to the Committees on Resolutions and New Business.

Publication Committee

Your committee had held one formal meeting together with the Board of Trustees and Associate Editors of NORTHWEST MEDICINE on the occasion of their annual meeting. It has also held several informal meetings to consider various aspects of the Journal's welfare from the Oregon state point of view. These deliberations have been made the subject of a memorandum which is available through members of the committee. In brief the following matters have been considered.

1. The question of the advisability of discontinuing the office of associate editor was discussed at length. It was argued, on the one hand, that the office was devoid of any real significance as far as function was concerned, and that appointment to this office might be the source of potential difficulty and embarrassment. It was argued, on the other hand, that the office was potentially a valuable one and that it should be retained and revitalized and made a useful office. This matter, after informal discussion, was brought before the meeting of the Board of Trustees. The matter was left under advisement after Dr. Smith offered to devote his energies toward revitalizing the position. The question was raised as to the advisability of having an appointee for this office subject to acceptance by the Council of the State Society or of having the appointee chosen from a group suggested by the Council. This matter was also left under advisement since it was clear that general rulings in this department would be a matter for consideration by all of the component State Societies.

2. A number of questions were raised relative to the management of the finances of NORTHWEST MEDICINE. Considerable interested discussion developed the following conclusion which was unanimous for the committee: (a) that the Oregon Councilors advocate the election of one of the Councilors, preferably a Seattle man, at least some one in a position to work conveniently with the Editor; that this Councilor be entitled Financial Councilor; that he advise with the Secretary-Treasurer in relation to all matters involving major financial operations of the Journal, notably the investment of excess funds, the allotment of money for salaries, the question of major expenditures such as printing prices, reprint prices, etc.; this Councilor to report back to the Trustees; (b) that this committee determine and reaffirm the stipulation offered by A. G. Bettman at the last regular meeting of the Board of Trustees to the effect that investments to be made with excess funds of the Journal be restricted to such securities and investments as are by law designated suitable for trust funds. No action was taken upon this suggestion at the general meeting, since it had been previously passed.

3. *Future welfare of the Journal*: The question of the conduct of the Journal in the event of the retirement of the present Editor was given due consideration. Clarence A. Smith asked for the appointment of Herbert L. Hartley of Seattle as Assistant to the Editor to fill the place formerly held by Dr. Bowers. Dr. Hartley was appointed by the Board of Trustees to fill this office. In this connection a resolution of high commendation was tendered to Clarence A. Smith of Seattle for his long, faithful and effective service.

4. *Production costs*: Your committee considered the question of production costs in relation to the printing costs for the Journal and especially in relation to reprint prices. This matter was brought up to Clarence A. Smith at the general meeting with the result that he made further observations indicating the reprints from NORTHWEST MEDICINE cost the author approximately in proportion to the other Journals, the A. M. A. Journal excepted. It was suggested that some action be taken, if possible, to obtain a lower reprint price from the printer, and that also careful scrutiny of printing costs be made with a view to obtaining a lower rate. Comparative prices were discussed and there was correspondence in relation to this point. This committee believes that this matter should be definitely followed up. In this connection it was pointed out that the Journal is in perfectly satisfactory financial condition, having a present excess of assets over liabilities of $3,300 approximately.

5. *Election of President:* At the recent meeting of the Trustees at the time of Pacific Northwest Medical Association meeting Adalbert G. Bettman, presiding at the moment as Vice-President, was elected to fill the vacancy in the Presidency. This vacancy existed because the man formerly elected President failed, upon the day following his election to this office, to be elected Trustee of the Journal by his component State Society. The result was that the office of President of the Board of Trustees was left vacant. Dr. Bettman was moved into this office and it was agreed that the Trustee to be elected shortly by the Washington Association would fill the office of Vice-President.

6. *Conclusion*: It is the sense of the majority of your committee that NORTHWEST MEDICINE is in eminently satisfactory condition; that congratulations are in order to its Editor, Clarence A. Smith, and that the chief matter for present concern is the question of the conduct of the Journal after the retirement of its present Editor.

GOODRICH C. SCHAUFFLER,
Chairman

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Medical Education and Hospitals

During recent years, the importance of the relationship of the physician and the hospital has become increasingly apparent. Generally speaking, the physician has given very little thought to hospital policies. He has been mainly concerned with having a suitable hospital connection and assuring himself that the facilities are adequate to enable him to practice in accordance with the standards of scientific medicine. Professional societies, such as the American Medical Association and the American College of Surgeons, have been largely concerned with establishing and enforcing proper standards for hospital facilities and personnel.

Until recently, little attention was given to the policy of certain hospitals which involved them in competition with private physicians in the specialties, particularly radiology and pathology. Another evil trend has been the inclusion on the staffs of some hospitals of physicians who obtain practice by solicitation and other unethical methods and the granting of preferential rates to the patients of these physicians. The effect of this latter policy has been to subsidize, at the expense of the private patients of ethical physicians, a considerable number of unethical physicians associated with commercial prepayment organizations. The hospitals which have resorted to this practice have in effect been lending financial support to unethical medicine to the serious injury of private practice.

The House of Delegates of the American Medical Association has recently taken notice of these evils and has adopted certain definite policies looking to their elimination. These policies have been expressed in the recent pronouncement, disapproving the practice of medicine by hospitals and in the resolution proposed by our society which requires the Council on Medical Education and Hospitals to deny approval to hospitals seeking acceptance as approved institutions for interneships and residencies, when such hospitals have on their staffs physicians who are violating the Principles of Medical Ethics or are granting lower rates to the patients of any of their staff members. These actions by our national association clearly indicate that the influence of organized medicine will be used to prevent hospitals from pursuing policies which injure ethical medical practice and thus tend to lower the standard of medical service to the people.

Another trend, involving the future of medical practice which is to be observed in various parts of the country and recently in our own state, is the organization of group hospitalization schemes. The movement toward group hospitalization has developed in part as a result of the agitation by the social welfare and related groups for changes in the method of delivering medical services and in part from the financial crisis with which many hospitals have been faced during the depression. Information in our possession indicates that a large percentage of such proposed schemes has failed, that group hospitalization shares certain evils inherent in all prepayment schemes, and that it is particularly undesirable when a third-party organization with the profit motive controls the plan.

Recently one of the proprietary hospital associations submitted a group hospitalization plan to the Portland hospitals. This proposal provided that the hospital association should have the exclusive right to use the names of the hospitals in selling hospitalization policies to the public and further provide that the hospitals should refuse to accept patients insured in any other similar plan. It is apparent that under such a scheme the hospitals would shortly find themselves under the domination of the commercial concern promoting the venture, as has been the case with the medical profession and, to some extent, the hospitals of the state under the existing set-up of the proprietary hospital associations.

Before any new project for providing hospitalization or general medical service is placed in operation in any of our local communities, it is essential that the local medical society carefully study the proposal jointly with the Council of the state society. The Bureau of Medical Economics of the American Medical Association is now engaged in a study of group hospitalization and will shortly publish a comprehensive report on this subject. Until this information is available, it would be unwise for the hospitals and medical profession of our state to adopt or approve any new scheme of hospital service.

In view of the trends we have discussed above, it is imperative that the medical profession in each local community, through the local medical society and the hospital staff organization, should insist on having a voice in determining the policies of the hospitals in which they practice, insofar as these policies affect the maintenance of professional standards and the preservation of high-type medical practice. The importance of requiring membership in the local medical society as a prerequisite to membership on a hospital staff should be constantly stressed.

W. F. Hollenbeck,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Public Education

Health education rightly interests all the members of the medical profession. However, few individual physicians have special training or experience in educational work and fewer still have the time or inclination to engage actively in teaching, writing or speaking on medical matters of general interest. Because of these facts, the Committee on Public Education questioned the advisability of attempting to develop an extensive program of its own in the educational field. However, it was felt that health education was being recognized as of great importance and that the physician should not, and indeed could not leave this field entirely in the hands of lay people or organizations. The laymen and organizations most interested in education in general are, of course, the teachers, the school and allied groups, such as the Parent-Teachers' Associations.

Apparently there has never been any attempt on the part of the state society to appraise the work in health education being attempted throughout the public school system or to aid in the development of a health educational program. Accordingly, in the early part of the year the Council was asked by this committee if it would be considered proper and worthwhile for this committee to begin: (1) to find out what is being done by our educational institutions and organizations, and (2) to inquire as to the contribution, if any, that the state society might make in this work. With the approval of the Council, the committee has made a beginning in bringing together public educators (and organizations) and physicians (through the state society). A number of individual conferences and two joint meetings were held in the office of the Department of Education at Salem. As a result of this brief experience, the committee is very happy to report not only that the parent-teachers' organizations and the schools are willing to have their work in health education scrutinized, but actually eager to have the doctors of the state informed as to the problems the school departments are facing.

Further than this, these men and women realize their need for guidance from the medical profession and are in effect saying this: "We, the parent-teachers' organizations and the schools of the state of Oregon are beginning to develop health education. In order to avoid mistakes and to develop an effective program we need the continuing help and counsel of the medical profession. We are eager to get all the help we can from the doctors of medicine." The committee feels that this is an opportunity that the state society cannot afford to lose. Of course, all of this work can not be done by committees and the doctors throughout the state should attempt to work with educators in the development of a proper health program.

On June 4, 1936, this committee met in the office of the Superintendent of Public Instruction with a committee from the City Superintendents' Association composed of C. A. Howard, Superintendent of Public Instruction; Rex Putnam, City School Superintendent, Albany; Frank Fogan, City School Superintendent, McMinnville; and D. A. Emerson, Supervisor of Secondary Education, State Department of Education. As a result of this and previous meetings, certain tentative agreements were reached and the following recommendations were made subject to the approval of the state society.

PHYSICAL EXAMINATIONS

1. That a preschool examination be given all pupils during the summer preceding their first registration in the public schools.

2. That a second examination be given at approximately the beginning of the ninth grade.

3. That all athletes be required to secure health certificates from the family physician each year preceding the athletic season in which the pupil expects to participate.

a. That interschool athletics for girls should be discontinued and that in its place a more moderate and varied program of physical activities be offered.

b. That, if possible, each school secure the services of a physician to care for the physical condition of the athletes during the athletic season.

4. That the P.-T. A. be commended for its activities in helping to provide for preschool clinics and the administration of physical examinations to pupils in the schools.

a. That, if possible, the services of the P.-T. A. should be secured especially in planning and organizing preschool clinics.

b. That, if possible, primary teachers be given an opportunity to visit during the months of April and May the homes of pupils who may enter school in the first grade the following September; these visitations to be an aid in securing necessary information and cooperation in planning the preschool examinations the following summer.

5. The schools should furnish all blanks to be used in recording the necessary information obtained as a result of the physical examinations.

a. That these blanks be approved by the Oregon State Medical Society.

6. If possible, all examinations should be conducted in doctors' offices outside of school hours.

a. It is suggested that the best time for these examinations is during the summer months.

b. That the cards on which personal information relative to the physical condition of the pupils is recorded should be returned to the schools.

7. That attempts to secure free services of doctors in giving physical examinations are not conducive to the best results and should be discouraged.

a. That the determination of a reasonable fee for the services of doctors in giving physical examinations in the schools be referred to the Oregon State Medical Society at its next annual meeting.

REMEDIAL MEASURES

1. It was agreed that, in general, public opinion favors the following preventive measures and that these should be administered in all public schools: (a) smallpox vaccination, (b) diphtheria immunization, (c) tuberculosis testing.

2. That it be recommended that all immunization and vaccination be administered in clinics rather than doctors' offices.

HEALTH EDUCATION

1. It is agreed that health education is primarily the function of the public schools but that the cooperation of the medical profession be secured when it is found feasible.

2. That all state courses of study in health education should be reviewed by authorized representatives from the Oregon State Medical Society before these courses of study are issued.

Your committee moves that the state society go on record as favoring the above recommendations.

Fred N. Miller,
Chairman

This report was referred jointly to the Committees on Resolutions and New Business.

At 9 a.m., it was voted to adjourn until 7:30 a.m. on Friday.

SECOND SESSION

Friday, October 9

The House of Delegates was called to order by President G. A. Massey at 7:30 a.m. at The Dalles Hotel.

On roll-call, the following members of the Council were present:

G. A. Massey, president; W. J. Weese, first vice-president; O. C. Hagmeier, second vice-president; J. C. Vandevert, third vice-president; O. F. Akin, treasurer; M. L. Bridgeman, secretary; Councilors C. E. Sears, K. H. Martzloff, C. E. Hunt, C. T. Sweeney, E. D. Lamb, Thompson Coberth, J. P. Brennan, H. A. Cary; J. H. Fitzgibbon, delegate to the American Medical Association.

The following delegates were present:

J. C. Booth of Lebanon, Central Willamette Medical Society; E. H. McLean of Oregon City, Clackamas County Medical Society; R. J. Pilkington of Astoria, Clatsop County Medical Society; F. G. Swedenburg of Ashland, Jackson County Medical Society; E. L. Zimmerman and L. S. Kent of Eugene, Lane County Medical Society; H. P. Rush, N. W. Jones, R. B. Adams, A. G. Bettman, Stanley Lamb, F. R. Mount, J. A. Pettit, and I. C. Brill of Portland, Multnomah County Medical Society; H. A. Dowd and R. M. Waltz of Salem, Polk-Yamhill-Marion Medical Society; David Robinson of Tillamook, Tillamook County Medical Society.

M. L. Bridgeman, chairman of the Committee on Credentials, reported that, in the absence of the regularly elected delegates from certain component societies, certain members were present and eligible to be seated. On motion duly made and seconded, W. T. Johnson of Corvallis, Benton County Medical Society, and J. C. Hayes of Medford, Southern Oregon Medical Society, were seated by vote of the House.

Several members of the Society and guests were also present, including Olin West, secretary of the American Medical Association, and C. A. Smith, editor of NORTHWEST MEDICINE. The executive secretary was also present.

On motion of Dr. Fitzgibbon, and duly seconded, it was unanimously voted that the House go into executive session, that attendance be limited to members of the American Medical Association, and that all publicity dealing with the meetings of the House and the general society be released only through the regular channels.

Committee on Medical Defense

The committee is of the opinion that the medical defense activities of the society during the past year have been the most effective yet carried on. This situation is largely due to the fact that a carefully planned procedure has been carried out in connection with each claim or suit and to the establishment of extremely close cooperation between the committee and the principal insurance carrier.

The following tabulation shows the number and outcome of claims and suits against our membership during the period of September 1, 1935, to October 1, 1936:

Claims: Number of Suits Filed

Pending at beginning of period	21
Filed during period	27
Total	48
Closed without payment	25
Settled for nominal amount	5
Pending at close of period	18
Total	48

Suits in Lower Court

Pending at beginning of period	21
Filed during period	5
Total	26
Nonsuits for physician-defendant	7
Jury verdicts for physician-defendant	2
Jury verdicts for plaintiff	1
Settled out of court for nominal amounts	0
Pending at close of period	16
Total	26

There was a marked decline during the past year in the number of suits filed. The number of claims (without suit) remained about the same, but many of these were of a trivial character and were closed without payment.

The committee calls attention to the fact that the principal insurance carrier has maintained the policy of contesting all claims which do not have genuine merit. This policy is in harmony with the experience of our committee that easy settlements tend to breed claims. During the past year, not a single case has been settled without careful analysis and prior approval by the committee as well as the defendant-physician.

The committee desires to point out that of a total of five claims settled during the period, two resulted from burns received from medical endothermy equipment. The incidence of these claims is increasing throughout the country and it is imperative that greater care be exercised in the use of this type of equipment. The committee recommends that the physician, or a qualified assistant, give close personal attention to the patient when this form of treatment is used.

It is gratifying to report for the second successive year that certain communities, which in the past have been sources of an abnormal number of claims and suits, have become almost entirely free from such difficulties. This happy circumstance may reasonably be attributed to an increase in mutual respect among the medical profession in these localities.

FRANK E. BUTLER,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Revision of Constitution and By-Laws

No specific suggestions for changes in the Constitution and By-Laws have been received by the committee during the past year. Nevertheless, consideration has been given to several amendments which might lead to the more effective handling of certain phases of the Society's affairs.

There appears to be need for a reorganization of our committee structure, particularly in connection with the consideration of problems which fall into the general classification of medical economics. At the present time there is no provision for a single committee with this designation. Matters of economics are now handled by the Committees on Public Policy, State Industrial Affairs, Clinic and Institutional Medical Care, Veterans Affairs, and the Medical Advisory Committee to the State Relief Committee. The two former committees are standing committees provided for in the by-laws, while the latter three are special committees which have been created from time to time over a period of years. It would seem desirable to define more accurately the functions of these various committees and perhaps to align them together under the broad committee designation of Medical Economics.

A similar overlapping of functions is apparent in connection with the handling of matters relating to public education. Here, again, this branch of our activities is cared for in part by a committee with that specific designation, but with several other committees dealing from time to time with one or more phases of this broad field. These committees include the standing Committee on Public Policy and the special Committees on Cancer Control, Conservation of Vision, Conservation of Hearing, Maternal Welfare, and Clinic and Institutional Medical Care.

In view of these apparent defects of our present committee structure, it would be desirable during the coming year to survey the scope of the activities which our society should properly undertake and to reorganize our committee structure in a more logical manner.

It may also be desirable to review carefully the existing provisions of the by-laws relating to the discipline of members. While under our existing scheme of organization disciplinary action is instituted in the local society, the state society is an appellate body to which the individual member may appeal. It would seem proper to set forth with more exactness the disciplinary procedure of the state society, the provisions of which might also well serve as a guide for local disciplinary procedure.

It is likely that there are other changes which might result in conducting our affairs with greater efficiency and dispatch. For this reason, a review of the entire Constitution and By-Laws would seem to be in order.

W. F. Hollenbeck,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Dr. Fitzgibbon discussed the difficulties involved in dealing with the numerous matters confronting the House of Delegates at the time of the annual session with the extended program of scientific sessions. On motion of Dr. Fitzgibbon, and duly seconded, it was unanimously voted that the House of Delegates hold a midyear session in addition to the session held in connection with the annual meeting of the Society.

Committee on Cancer Control

The Committee on Cancer Control has refrained from pressing any definite program during the past year. This state of affairs is due in large part to the difficulties experienced during recent years in establishing satisfactory relationships with the American Society for the Control of Cancer and its Oregon branch.

Our society has become extremely cautious in dealing with lay organizations which are interested in educating the public concerning one or another of the common diseases. This attitude is based upon a number of factors, including the activities of enthusiastic lay secretaries of such organizations who seek to put over their programs with the medical profession and the lay public without the guidance of organized medicine. The situation has been particularly disturbing in connection with efforts to educate the lay public concerning cancer.

Nevertheless, there is a proper field for the dissemination of information concerning cancer among the medical profession and the laity. Our committee is hopeful that the time has arrived when our society may undertake the leadership in such a program. Our hopefulness arises in considerable part out of a conference of our committee with Clarence C. Little, Managing Director of the American Society for the Control of Cancer, John M. Flude, Western Representative of the Society, and Arthur M. Geary, President of the Oregon branch, which was held some months ago. At this conference, our committee brought forward certain criticisms of the past activities of these organizations and pointed out the principles upon which a workable plan of cooperation might be carried on in the future. Among the points emphasized by our committee were:

1. The reorganization of the Oregon branch of the American Society for the Control of Cancer in such a way as to lodge the function of policy formation in the hands of the Committee on Cancer Control of the Oregon State Medical Society.

2. The placing of the responsibility for the education of the medical profession and the public concerning cancer in the hands of the Committee for Cancer Control, the American Society and its Oregon branch to concern themselves largely with the raising of funds from lay sources and the supplying of educative materials to the committee of our society.

3. Making provision to permit our society to submit to the American Society for the Control of Cancer a list of physicians from which its State Director would be chosen.

4. The elimination of any plan by the Oregon Branch of the American Society for the Control of Cancer to maintain a full time executive secretary, such duties to be cared for by the executive secretary of our society.

5. The elimination of the practice of representatives of the American Society for the Control of Cancer and its Oregon branch of dealing directly with the membership of the component societies, and the recognition of the Oregon State Medical Society as the proper agency for reaching the medical profession of the entire state.

6. The recognition of the fact that funds for educating the public concerning cancer should be provided from lay sources, inasmuch as physicians contribute to the cancer control program through the payment of their professional society dues and also through a large contribution in the professional services rendered to indigent persons suffering from cancer.

The committee learned that these general plans were acceptable to the representatives of the American Society for the Control of Cancer and its Oregon branch. The acceptance of these proposals should form a basis upon which a sound program of cancer control may be developed during the coming year.

Charles E. Sears,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Medical Advisory Committee to the State Relief Committee

The duties of this committee have been largely eliminated since the adoption by the Federal Government of a policy of work relief rather than direct relief. No federal funds for the direct relief of the unemployed have been received by the state since the inauguration of the Works Progress Administration.

Under prevailing federal policy, employable persons who have not been able to obtain private employment are being employed on WPA projects. At the same time, care for the unemployables has been turned back to the state and county relief committees to be financed from state and county funds. The State Relief Committee has adopted no uniform program for medical relief to the unemployables, but has left it to the various county relief committees to determine the amount and nature of medical care to be supplied to this group. As a result, a number of counties have reestablished the old arrangement of a full-time or part-time county physician to care for the unemployable on a salary basis. Other counties have continued to provide some medical relief through private physicians, usually, however, on a greatly curtailed basis. That the present medical relief situation is not satisfactory is apparent from the request recently made by the State Relief Committee to our Council for the cooperation of the society in an investigation of the medical relief situation in several communities of the state.

WPA workers who are injured in the course of their employment are being cared for under regulations of the U. S. Employees Compensation Commission. These regulations provide that injured workers shall be cared for in federal medical establishments where such facilities exist and are not in full use by other designated beneficiaries of federal medical service. Under this plan, WPA workers injured in the vicinity of Portland are receiving care from the staff of the U. S. Public Health Service.

In other parts of the state, however, the WPA State Compensation Officer is authorized to make arrangements for medical care by private physicians at customary minimum fees. Our committee held numerous conferences with Mr. E. J. Griffith, WPA Administrator for Oregon, and his assistants concerning the interpretation of the regulations of the U. S. Employees Compensation Commission. These officials indicated that they favored as wide a participation by private physicians throughout the state as was feasible. At the request of the WPA State Compensation Officer, our headquarters office supplied him with a statewide list of all physicians in active private practice, arranged by counties, for use in this connection.

We have received no complaints from physicians concerning the operation of this plan of caring for WPA workers injured in the course of their employment, for which reason we assume that the plan is working to the reasonable satisfaction of the medical profession.

On the other hand, it is probable that WPA workers, owing to the nominal wages they receive, find it difficult to pay for medical care in the sickness of themselves or their families. In many instances, these families are of course eligible to receive care without cost from charity clinics and hospitals. However, the bulk of these families are no doubt being cared for by private physicians without charge or at very small fees.

Notwithstanding the fact that no statewide medical relief program is now in effect, the committee has continued to make available to the State Relief Committee its advice on medical questions. The most recent problem related to the examination of the needy blind who seek the payments available under the recently enacted federal and state social security legislation. The Oregon law provides that: "A person shall be considered as blind for the purpose of this act who has a vision in the better eye with correcting glasses of 20/200 or less, or a disqualifying visual field defect as determined upon examination hereinafter provided by an ophthalmologist licensed to practice in Oregon and designated to make such examinations by the State committee in the manner provided by this act."

At the request of the State Relief Committee, our committee supplied a statewide list of ophthalmologists who were available to determine the extent of visual defect in applicants for government aid. Some complaint has been voiced in the smaller communities on the ground that there is no ophthalmologist practicing in the area and that in such a community the State Relief Committee should approve the making of these examinations by general physicians. Such action would not be within the discretionary powers of the State Relief Committee because the law specified a type of examination demanding special training in ophthalmology and requires that specialists in this field shall make the examinations.

Thomas Wynne Watts,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Conservation of Vision

The committee has continued the distribution to interested persons of the pamphlet printed in 1934, entitled, "The Eyes of Your Child." School and county health nurses have found this leaflet especially useful and the committee has supplied this group through the Bureau of Nursing and Child Hygiene of the State Board of Health.

The chairman of the committee, at the invitation of the State Health Officer, presented a paper on the conservation of vision at the Annual Conference of City and County Health Officers held at Portland early this month.

The committee has been feeling its way carefully. The conservation of vision movement is still relatively new and caution must be exercised in order to avoid being drawn into unsound educational programs.

There are several ways in which the problem of eyesight is being brought to the attention of the public at the present time. Much of the discussion on this subject arises in connection with the movement to obtain more exacting requirements for automobile drivers, with sight-saving classes in public schools, and better illumination campaigns by electric utilities stressing the need of better lighting in homes, factories and offices. Along with these newer developments has been the persistent, commercial-type advertising of many optical companies and optometrists. In such a confused situation the committee has been hesitant to involve the society in any extensive public activity.

However, the committee now feels that it has had sufficient opportunity to become adjusted to the various forces at work in the education of the public on the subject of vision and believes that we may now safely undertake a more active part in this field.

A. B. Dykman,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Clinic and Institutional Medical Care

In addition to the routine matters coming to its attention, your committee has devoted considerable time to two projects. While confined in operation to the Portland area, the thought was always uppermost in our minds that adaptation throughout the state was of prime importance.

PRESCHOOL EXAMINATIONS

Through cooperation with the Portland Parent-Teacher Association, all mass examination of children in the schools, the so-called "Summer Round-ups," were discontinued. In place thereof, the following procedure was adopted:

1. Committees were appointed in each school as in the past. These women visited the homes of all preschool children.
2. The mother was given a letter from the local medical society stressing the reasons why a preschool examination is desirable, and why the advice of the family physician was of more value than that of a sometimes hypercritical stranger. The medical society also offered to conduct this examination at a reduced fee (50 per cent of each physician's normal charge for such service). Physical examination blanks were left with the mother and she was told to take them to her physician.
3. The physical examination section of the blank was filled in by the physician and returned to the mother.
4. After a reasonable period all families were again contacted at home and the completed blanks gathered. Where no physician had been consulted, the parent was urged to take the children to a clinic arranged for by the Parent-Teacher Association.

TUBERCULIN TESTING

The second project consisted of an effort to place the tuberculin testing of school children on a basis fairer to the medical profession. The suggested program is as follows:

1. After preparation of the parents and children educationally as to the significance of a positive reaction, the children take home a card requesting the parents' permission to test the child. This card must state the name of the family physician.
2. The intradermal tests are done for a fee of 25 cents. Indigents are tested without charge. The moneys collected are used to pay the cost of chest roentgen plates on the positive reactors.
3. A detailed contact history is obtained from the family.
4. The roentgen plate, its interpretation by the roentgenologist, and a copy of the history are mailed to the family physician.
5. The physician then handles the case as he would any private patient, advising the parent as to the child's future care, need for periodic examinations, immunizations, etc.
6. A brief report of his diagnosis and advice are mailed to the organization conducting the survey. This is compiled on an appropriate form.

S. G. Henricke,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Military Affairs

Military activities of the State and Nation have been quiet during the past year. No occasion has arisen or has been brought to the attention of the committee that required action.

Military instructions of reserve officers have been pursued as usual. Classes are being opened again this season under the Unit Medical Instructor for Portland, Major Frances B. Dwire, M. C., U. S. Army. Major Dwire is also Professor of Military Science and Tactics at the University of Oregon Medical School, where R. O. T. C. activities have been resumed for the freshman class.

This R. O. T. C. activity, we believe, is the result of work of the Military Affairs Committee of the Oregon State Medical Society in conjunction with the Military Affairs Committee of the American Medical Association. Congress was made to see the importance of appropriations to reestablish and continue this instruction.

The number of Medical Corps Reserve Officers in Oregon is 152; dental 99; medical administrative 40; sanitary reserve 5; veterinary 26; a total of 322.

Of these 322 reserve officers, 130 were enrolled in Army Extension courses, completing 300 subcourses of instruction. These 130 officers earned approximately 4500 credit hours.

In addition to Army Extension Courses, military classes were held twice monthly in the City of Portland, giving instructions in advanced medical military work, advanced medical and dental administrative subjects, advanced veterinary and basic classes for all branches of the medical department of the army. Army Extension Courses for the State of Washington are also conducted from Portland. Officers from Washington attend classes in Portland. Total enrolled, for the two states, 230; courses completed 551; total credit hours 9404.

The State of Oregon is to be congratulated on having a Medical Instructor with the energy and efficiency of Major Frances B. Dwire of the Regular Army. It is requested that copy of this report be submitted to the Surgeon General of the Army. H. M. Greene, *Chairman.*

This report was referred jointly to the Committees on Resolutions and New Business.

Liaison Committee to the Woman's Auxiliary

The committee has been in conference from time to time with the officers of the Woman's Auxiliary, largely concerning the participation of the Auxiliary in various projects relating to the public health proposed by woman's clubs and other lay organizations. The committee has attempted to offer helpful advice, trying to bear in mind at all times the necessity of keeping the organized medical profession free from embarrassing entanglements, and at the same time to avoid stifling the efforts of the Auxiliary in public movements whose purpose is to advance the public health. The Auxiliary is to be complimented upon its many achievements in support of our society and its readiness to follow our advice as to the scope and nature of its activities.

One of the primary objects of the Auxiliary, as promulgated in the national program, is the wide dissemination of "Hygeia." Our Auxiliary has been especially active in this regard and has received national recognition as a result of its efforts.

The committee has from time to time discussed with the Council and its Executive Committee various methods by which the society could assist the Auxiliary in still further increasing the influence of "Hygeia" in the state, particularly among schools and public officials. This subject was recently discussed in detail, using as a basis a carefully compiled and comprehensive report by Mrs. Arthur J. McLean, "Hygeia" chairman of the Auxiliary. Mrs. McLean obtained from the American Medical Association a list of all "Hygeia" subscribers in the state. She then checked this list with a list of schools, public libraries and other institutions, and various public officials, in order to learn to what extent these groups were included among present subscribers. Then she drew up several alternative plans for subsidizing "Hygeia" subscriptions among these groups, either entirely from society funds or partly through the cooperation with the school districts and Parent-Teacher Associations.

Such a plan of subsidy is feasible, for the reason that group subscriptions can be obtained from the American Medical Association at very nominal rates. The Council has authorized the Executive Committee to adopt a plan of thus subsidizing "Hygeia" subscriptions which, in its opinion, can be maintained over a period of years without producing a serious drain upon the society's funds. It seems likely that a plan of this kind will be worked out during the coming year, perhaps initially on a limited, experimental scale which later can be materially expanded in scope.

It is believed that a program of increasing the use of "Hygeia" offers one of the best opportunities of moulding public opinion in accordance with the viewpoint of scientific medicine. This view appears to be sound, not only from the standpoint of the nature of the material appearing in "Hygeia," but also from that of the magazine as a continuously-operating educational force. The program in contemplation is particularly timely in view of the many articles in "Hygeia" which set forth the position of organized medicine on socialized medicine and related subjects.

Charles E. Sears,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Maternal Welfare

This committee has not undertaken any extensive program of new activities since the last annual session. The committee was created only last year to cooperate with the American Committee on Maternal Welfare which is carrying on a national program, whose object is to assist the physician to make continuous improvements in the quality of maternal care.

At the last annual session the committee arranged a symposium, entitled "Common Errors Responsible for Maternal Mortality," the object of which was to bring to the membership the latest information on the stated subject.

Through the cooperation of the Department of Obstetrics of the University of Oregon Medical School, an extensive exhibit entitled "A Comparative Statistical Study on Maternal Mortality, Showing the Value of Prenatal, Delivery, and Postnatal Care" was presented at the annual meeting of Pacific Northwest Medical Association held at Portland in July. This exhibit was accompanied by a practical demonstration of the technic of home delivery employed by the department and the Multnomah County Hospital.

During the present session there will be presented, at the suggestion of the committee, a paper on "The Control of Pregnancy Toxemias Through Adequate Prenatal Care," by Jean Kindschi of Spokane, who carried on an extensive study of this subject over a period of three years, while a member of the staff of the University of Oregon Medical School and the Multnomah County Hospital.

The committee has met on a number of occasions to discuss the various problems involved in attempting to improve maternal care throughout the state. The situation may be conveniently discussed under three general headings:

1. Lack of Prenatal Care or Inadequate Management. In analyzing the maternal deaths which have occurred in this vicinity, we have found that the majority of mothers who died had little or no prenatal care. While we realize that some patients are not cooperative, many would have come regularly for examinations and advice, if they had been urged to do so by their physicians. The importance of proper prenatal care needs little emphasis, as all studies of obstetric patients show that those who have received proper care and supervision have much lower morbidity and mortality rates than those who have not.

2. The Control of the Practice of Obstetrics in Small Hospitals and Maternity Homes. The acceptance of obstetric patients in hospitals handling all types of diseases is open to much criticism. Obstetric cases should be isolated from the rest of the hospital. It seems almost impossible to do this in many of the small hospitals, but if the importance of isolation is emphasized and brought to their attention, we feel sure that many will make such provisions.

3. The Proper Conduct of Delivery in the Home, both in the Cities and in Rural Communities. Much good might be accomplished by a campaign of education, conducted by those who are competent to instruct, in preparing the expectant mother in planning for her delivery, in having the supplies of sterile gauze on hand, and in making use of trained nurses who should be in attendance on such cases. Consultation in complicated cases should be sought more often and men who are competent to discuss the different obstetric problems should be sent into the various communities to give postgraduate obstetric lectures.

Certain specific rules should also be made the order, including the following: (1) wearing of rubber gloves in every case; (2) elimination of vaginal examination; (3) shaving of the perineum; (4) elimination of the use of pituitrin during the first and second stages; (5) wearing of masks in the delivery room; (6) isolation of infected cases; (7) avoidance of intravaginal douches or treatment just prior to or following delivery; (8) recommending consultation with an obstetrician in the following cases: (a) cesarean section and high forceps, (b) prolonged labors, (c) breech presentation (particularly in primiparae), (d) placenta praevia, eclampsia.

Summing up the maternal welfare situation, we feel that a campaign of education is needed to reach the patients themselves, and the doctors who are to care for the patients. This can be accomplished through the medical society and the lay press, and the cooperation of the American Committee on Maternal Welfare who are most anxious to assist.

Raymond E. Watkins,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Committee on Veterans Affairs

This committee has continued to follow out the policy adopted at its inception of maintaining liaison between the medical and veteran organizations and of rendering at all times the information and assistance necessary for the conduct of medical care of the service-connected and needy veteran. The harmonious conduct of this activity has brought the medical and veterans organizations closer together and we are at this time in closer relationship on all medical matters than at any time during the history of the veteran organizations.

At the recent meeting of the National Rehabilitation Committee of the American Legion-Area E our committee was represented and called upon for medical advice and consultation.

Many members of this committee have enjoyed high office in these organizations. Laban Steeves of this committee, by virtue of his veteran work and with the help of his medical confreres of the society, was elected to a national office in the 40-8 Society at the National Convention of the American Legion at Cleveland this year. In fact, the membership of this committee is composed principally of men who have held or are now holding high office either in the American Legion or Veterans of Foreign Wars. They are familiar with the ways of the veteran and have been one of the chief factors in developing the mutual understanding which now prevails between these great organizations.

There has been no change in the medical care of the veteran since the enactment of Public No. 141 which confines medical care to service connected cases and to nonservice connected cases involving major sickness or injury, the latter only when the veteran is unable to pay. These are cases which would otherwise be thrown back upon the cities and counties to be cared for along with the nonveteran indigent. The Veteran Facility of Portland is still functioning at a peak load, with an average of 322 patients who are eligible for care under the above-mentioned regulations. The recent adjusted compensation award has not lessened the veteran hospital load to any appreciable degree.

The Veteran Facility at Roseburg is still functioning as a soldiers home and receives patients for hospitalization and domiciliary care. There has been a concerted effort by the veterans organizations to transfer its activities to that of a nervous hospital, but to date this has not been accomplished.

At the recent State Convention of the American Legion, a Disaster Relief Committee was created, making it mandatory upon each post to carry out in detail the function of relief. This action has created overnight a statewide Disaster Relief Committee, and a demand for medical advice and assistance in each Legion post. We recommend that this society continue to be of assistance in this worthy cause. The Disaster Relief Committee is already functioning in the Bandon fire area and members of this committee have given valuable assistance in the relief work.

I wish to thank Paul I. Carter and his staff for valuable assistance during my term as your chairman. I feel that he understands our problems and has been very ready to cooperate with our society. It would, therefore, seem only proper that we offer our assistance in reciprocity. I wish also at this time to extend thanks to the members of the committee for their valuable support in maintaining such harmonious relations with the veteran organizations and to recommend that those that are eligible join their ranks, so that we can rightly guide them in their humanitarian endeavors.

Archie C. Van Cleve,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Advisory Committee on Federal Survey of Disabling Illness

This committee was appointed by the Council to serve in an advisory capacity to the Oregon Supervisor of the Federal Survey on Disabling Illness. This survey was conducted under the direction of the U. S. Public Health Service. It was in part an unemployment relief project and the personnel, which consisted largely of "white-collared" unemployed, were paid from WPA funds.

At the outset, the Council was skeptical concerning the purpose behind the survey, inasmuch as fear had been expressed that the findings would be used by those individuals and groups who maintain that large numbers of people are not receiving adequate medical care under the existing system of private practice. However, the Council accepted the declaration of the U. S. Public Health Service that the only purpose of the survey was to fill in certain gaps in existing data concerning the health of the nation.

The survey was carried on in four communities: Portland, St. Helens, Salem, and LaGrande. The original source of information was a personal interview with some member of the family by a lay enumerator who called at the home. The attending physician in each reported illness was later asked to check, on a form provided by the U. S. Public Health Service, the diagnosis reported by the family.

Our committee raised the question as to the legal liability incurred by a physician in complying with the Surgeon General's request to divulge the nature of the illnesses of patients contacted during the survey. Following the advice of legal counsel, it was concluded that the physician has a legal responsibility not to reveal information which might be used to the detriment of the patient, but from a practical standpoint the physician might supply the information requested, as the risk of incurring liability was negligible under the safeguards adopted by the Public Health Service.

These facts were brought to the attention of the component societies in the four cities involved. It was suggested that each physician should decide for himself whether he wished to confirm or refuse to confirm the diagnosis of those of his patients who had been included in the survey.

Our committee was favorably impressed with the attitude of cooperation and the understanding displayed by Mr. Arch B. Clark, Oregon Supervisor of the Survey, with whom our committee held frequent conferences. It seemed apparent that the U. S. Public Health Service was endeavoring to carry on the survey with due regard for the viewpoint of the medical profession.

C. H. Manlove,
Chairman.

This report was referred jointly to the Committees on Resolutions and New Business.

Advisory Committee to the State Board of Health On Laboratory Standards

This committee was appointed by the Council in accordance with the provisions of Chapter 322, Oregon Laws, 1935, which provides for the registration, inspection and approval of laboratories which examine infectious material. The function of the committee is to advise the State Board of Health concerning the regulations necessary to carry out the provisions of this new law.

The Committee has encountered a great deal of difficulty in formulating a workable set of regulations, owing to the fact that uniform standards in this field have not yet become general. The following regulations have been submitted to the State Board of Health as tentative proposals for its consideration. It is likely that some changes will be necessary before a satisfactory working basis is reached.

LABORATORIES SUBJECT TO REGULATIONS

Section 1. Every county, municipality, institution, person, firm or corporation operating or maintaining a laboratory in which human or animal body fluids, secretions or excretions are examined for the determination of the presence or absence of an infectious agent in the material examined or in person or animal from which it was secured, shall register annually with the State Board of Health, giving the name of such laboratory, its location and the name of the person or persons owning or operating the same.

Section 3. The State Board of Health shall issue certificates of approval to laboratories which after inspection are found to conform to the standards required by the State Board of Health.

GENERAL REQUIREMENTS

Only those laboratories in which the space, equipment, finances, management, personnel and records are such as will ensure honest, efficient and accurate work will be granted approval.

LOCATION, HOUSING AND EQUIPMENT

The housing and light shall be adequate for the proper functioning of the laboratory. The equipment shall be sufficient to permit essential technical procedures to be properly carried out.

QUALIFICATIONS OF TECHNICIANS

The director shall have a corps of technicians, responsible to him and for whom he is responsible, to carry out promptly, intelligently and accurately the several kinds of service the laboratory offers. All their reports shall be made to the director.

An approved laboratory shall employ as laboratory technicians only persons who have been certified as such by the American Society of Clinical Pathologists, or who have been graduated from a school approved by the American Society of Clinical Pathologists; provided that laboratories established prior to the date on which the laboratory registration law became effective and which meet the other standards set forth herein may retain laboratory technicians not so certified or who have not been graduated from such a school.

REPORTS

An approved laboratory shall make its reports through the director. Reports shall only be made to persons duly licensed to practice the healing art in Oregon, except that such reports shall be made to the State Board of Health as are required by law or by the regulations of the Board. All blanks for reports and other documents shall have the name of the director printed on them.

RECORDS

Full records of all examinations made by the laboratory, suitably indexed and filed, shall be kept. Every specimen analyzed in the laboratory shall be given a serial number, which shall follow that specimen in the records and reports. When the laboratory report concerns a hospital patient, an exact transcript of the laboratory record shall be appended to the hospital case record. All records shall be open to inspection by representatives of the State Board of Health.

During the first week in January a complete statistical report for the previous year shall be submitted to the State Board of Health. These annual reports shall include the number of specimens examined and the number of examinations or tests in each classification.

SCOPE

An approved laboratory shall be prepared to render the following services:

1. Hematologic: Blood counts, blood grouping and coagulation tests, and tests for blood parasites in general.
2. Biochemic: Qualitative and quantitative analyses of urine, blood, gastric contents, body fluids, feces, intestinal contents and cerebrospinal fluids.
3. Bacteriologic: Bacteriologic diagnoses, preparation of vaccines and blood and body fluid cultures.
4. Serologic: Serologic diagnoses, agglutination, complement fixation, or precipitin and lysis tests.
5. Parasitologic: Protozoal diagnoses.

QUALIFICATIONS OF DIRECTOR

The director of an approved laboratory shall be a graduate of an acceptable medical college, who is in reputable standing as a physician, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestations of disease in the patient, and knows laboratory work sufficiently well to direct and supervise technical procedures and to recognize the clinical value of laboratory reports. In brief, the director of an approved laboratory shall be sufficiently qualified to receive the same recognition as other specialists in medicine. He shall be on full time or have definite hours of attendance sufficient to insure proper supervision of the laboratory work. However, laboratories, established prior to the date on which the laboratory registration law became effective and which meet the other requirements set forth herein, may retain as director a person not so qualified.

FEES

There shall be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group.

PUBLICITY

Publicity of an approved laboratory shall be in professional good taste and be limited to statements of fact, as the name, address and telephone number of the laboratory; names and titles of the director and other active responsible personnel; fields of work covered; office hours; directions for sending specimens, etc., and shall not contain misleading statements or claims of unusual superiority. It shall not advocate fads nor lay undue stress on the importance of laboratory findings.

Only the names of those rendering regular service to the laboratory shall appear on letterheads, or any other form of publicity as being connected with the laboratory.

Advertising matter shall be directed only to persons duly licensed to practice the healing art in Oregon, either through bulletins or through recognized technical journals, and shall not be directed to the nonprofessional public, as, for example, by advertisements in popular journals and periodicals, circulars, pamphlets, directories or other means.

No publicity shall be used which is designed to obtain patronage by advertising the fact that the laboratory is approved by the State Board of Health.

C. H. Manlove,
Chairman

This report was referred jointly to the Committees on Resolutions and New Business.

Invitations for 1937 Session

W. W. Baum of Salem, representing the Polk-Yamhill-Marion Medical Society, extended an invitation to hold the 1937 session in Salem. K. H. Martzloff of Portland, called attention to the favorable reaction of the membership to the holding of the 1935 session at Gearhart and suggested that the 1937 session be held there. J. C. Vandevert of Bend invited the Society to meet in his home city in 1937 in the event that Gearhart was not again selected as the meeting place. Thompson Coberth of The Dalles expressed the opinion that one of the chief values of the annual session was the education of the public of the convention city in medical matters and that, therefore, it was desirable that the annual session should be rotated among the various cities of the state. On motion duly made and seconded, it was voted that all invitations for the 1937 session be referred to the Committee on New Business.

President Massey introduced Olin West, secretary of the American Medical Association. An informal discussion concerning various current problems of concern to the medical profession followed. Dr. West and numerous members of the House participated in this discussion.

At 9:00 a.m., on motion of Dr. Fitzgibbon, seconded by Dr. Sears, it was unanimously voted to continue in session as long as necessary to complete the discussion with Dr. West. The discussion was then continued. Following the discussion, on motion of Dr. Sears, seconded by Dr. Fitzgibbon, a standing vote of thanks was given Dr. West for his attendance at the meeting and for the helpful information he presented.

A telegram was read from R. A. Fenton, Trustee of the American Medical Association, expressing regret concerning his inability to be present and offering best wishes for a successful meeting.

On motion of Dr. Bettman, and duly seconded, it was voted that the House go out of executive session and return to regular session and that all actions taken in executive session be official actions of the House.

At 10:00 a.m., it was voted to adjourn until 7:30 a.m. on Saturday.

Third Session

Saturday, October 10

The House of Delegates was called to order by President G. A. Massey at 7:30 a.m., at The Dalles Hotel.

On roll-call, the following members of the Council were present:

G. A. Massey, president; A. M. Webster, past-president; O. C. Hagmeier, second vice-president; J. C. Vandevert, third vice-president; O. F. Akin, treasurer; M. L. Bridgeman, secretary; Councilors C. E. Sears, K. H. Martzloff, C. E. Hunt, C. T. Sweeney, E. D. Lamb, Thompson Coberth, and H. A. Cary; J. H. Fitzgibbon, delegate to the American Medical Association.

The following delegates were present:

W. T. Johnson of Corvallis, Benton County Medical Society; J. C. Booth of Lebanon, Central Willamette Medical Society; Albert Mount of Oregon City, Clackamas County Medical Society; R. J. Pilkington of Astoria, Clatsop County Medical Society; F. G. Swedenburg of Ashland, Jackson County Medical Society; E. L. Zimmerman and L. S. Kent of Eugene, Lane County Medical Society; C. W. McCain of Hood River, Mid-Columbia Medical Society; H. P. Rush, N. W. Jones, C. P. Wilson, Stanley Lamb, F. R. Mount, and J. A. Pettit of Portland, Multnomah County Medical Society; H. A. Dowd and R. M. Waltz of Salem, Polk-Yamhill-Marion Medical Society; J. C. Hayes of Medford, Southern Oregon Medical Society; David Robinson of Tillamook, Tillamook County Medical Society.

Several members of the Society and the executive secretary were present.

Communications

A letter was read from the Portland Better Business Bureau, requesting the cooperation of the membership in distributing pamphlets prepared by the Bureau in opposition to the so-called Truthful Advertising Constitutional Amendment on the November ballot.

Report of Committee on New Business

Your Committee on New Business to which were referred numerous reports of officers and committees, as well as other matters, submits the following report:

1. Your committee recommends the adoption of the reports of the Secretary, the Treasurer, the Delegate to the American Medical Association, and the Committees on Scientific Work, Publication, Medical Defense, Medical Education and Hospitals, Cancer Control, Medical Advisory Committee to the State Relief Committee, Conservation of Vision, Clinic and Institutional Medical Care, Military Affairs, Liaison Committee to the Woman's Auxiliary, Maternal Welfare, Veterans Affairs, Advisory Committee on Federal Survey of Disabling Illness, and Advisory Committee on Laboratory Standards to the State Board of Health. Your committee further recommends the adoption of the recommendations contained in these reports and the commendation of the officers and committees for the excellence of their activities and the informative quality of their reports.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

2. Your committee recommends the adoption of the report of the Committee on Public Policy and that the attention of the component societies be called to the recommendations of the committee concerning opposition to the so-called Truthful Advertising Constitutional Amendment on the November ballot and to the desirability of giving active support to the physician-candidates for the state legislature.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

3. Your committee recommends the adoption of the following amendment to the by-laws proposed by Thompson Coberth, Chairman of the Committee on State Industrial Affairs:

That Section 9 of Chapter VIII be amended so as to read as follows: The Committee on State Industrial Affairs shall consist of six members, each of whom shall serve for a period of three years; provided that immediately following the adoption of this amendment, two members shall be appointed to serve for one year, two for two years, and two for three years. This committee, subject to instructions from the Council, shall represent the Society in all matters relating to industrial medicine and surgery.

On motion of Dr. Martzloff, seconded by Dr. Coberth, it was unanimously voted that this recommendation be adopted and that this proposed amendment to the by-laws be adopted.

4. Your committee recommends the adoption of the report of the Committee on State Industrial Affairs and recommends that the committee be authorized to deal with the State Industrial Accident Commission for the purpose of obtaining the elimination of or a reduction in the 25 per cent discount from the Society's Minimum Industrial Fee Schedule which the Commission is now applying to the compensation of physicians.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

5. Your committee recommends that the Committee on State Industrial Affairs be authorized to cooperate with the State Industrial Accident Commission in a survey of occupational diseases in connection with contemplated amendments to the Workmen's Compensation Law designed to make such diseases compensable.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

6. Your committee recommends that the report of the Committee on Public Education be referred to the Council with power to act. The committee makes this recommendation because of the detailed nature of this report and the numerous questions of basic policy requiring study before well-advised action can be taken.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

7. Your committee recommends that the report of the Committee on the Revision of Constitution and By-Laws and its recommendation for a careful review and drafting of needed amendments be adopted; and further that the suggestion of Olin West, Secretary of the American Medical Association, that each component society be requested to review and amend its constitution and by-laws in harmony with that of the state society, particularly with regard to disciplinary procedure, be followed out.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

8. Your committee recommends that the action of the Council on September 2, 1936, in adopting a certain Statement of Principles and Procedure for the Control of Contract Practice, submitted with the report of the Secretary, be ratified and adopted as the policy of the Society on this subject.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

9. Your committee recommends that all invitations and suggestions received concerning the place of the 1937 annual session be referred to the Council with power to act.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

10. Your committee recommends the adoption of the report of the Committee on the Survey of State Facilities for the Care of the Tuberculous and the adoption of its recommendations revised as follows:

(1) That the capacity of the state hospital at The Dalles be increased to 250 beds and that this be done before any other building or expansion is carried out at any other place in the state.

(2) That the care of patients ready for discharge be more thoroughly studied by the proper agencies to the end that more beds will be available in our state hospitals.

(3) That further state tuberculosis hospitals be constructed with due consideration to the total tuberculosis problem.

(4) That case finding and early diagnosis be a dominant factor in the tuberculosis program.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

11. Your committee recommends that each delegate be requested to present at the November meeting of his component society a summary of the various reports of officers and committees and the actions of the House of Delegates.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

12. Your committee recommends that each component society devote certain of its meetings during the coming year to a discussion of problems of medical economics and the policies of organized medicine with relation thereto.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

13. Your committee recommends that in order to avoid duplicate representation in the House of Delegates the several district societies, in electing delegates to the state society, bear in mind the representation already accorded their membership through delegates elected by the county medical societies within the boundaries of the district society.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was unanimously voted that this recommendation be adopted.

14. Informally, your committee feels that in the light of the increasingly invaluable services of our executive secretary, Mr. Clyde C. Foley, and the reduced salary under which he has been working, his former salary should be restored. This suggestion has been prompted by the favorable financial report which shows an abundant reserve.

On motion of Dr. Booth, seconded by Dr. Martzloff, it was voted that this recommendation be adopted.

Report of Committee on Resolutions

Your committee recommends the adoption of the following resolutions:

Resolved, That the Oregon State Medical Society commend the dignified and efficient administration of G. A. Massey, our retiring president, which has been marked by the most cordial relationships between the president, the Council, and the several committees.

Resolved, That the Oregon State Medical Society commend Otis F. Akin, our treasurer, for the efficient manner in which he has handled the Society's funds and congratulate him on his good report and the satisfactory financial conditions it reflects.

Resolved, That the Oregon State Medical Society express its appreciation to Morris L. Bridgeman, our secretary, and to Clyde C. Foley, our executive secretary, and to their assistants, for the splendid manner in which the business of the Society has been carried out.

Resolved, That the Oregon State Medical Society express its sincere appreciation of the effective work of our delegate, John H. Fitzgibbon, at the 1936 meeting of the House of Delegates of the American Medical Association.

Resolved, That the Oregon State Medical Society acknowledge the great sacrifice and untiring efforts of Thomas Wynne Watts as chairman of the Committee on Public Policy.

Resolved, That the Oregon State Medical Society express its gratitude to the Woman's Auxiliary for its continued support of numerous activities in behalf of the medical profession.

Resolved, That the Oregon State Medical Society express its appreciation to Olin West, Secretary of the American Medical Association for his visit and timely message on professional ethics.

Resolved, That the Oregon State Medical Society express its appreciation to our guest speakers, Joseph Tamura, Clarence E. Dolman, and Clifford Sweet, for their excellent contributions to our scientific program.

Resolved, That the Oregon State Medical Society express its thanks to the Secretary and the Committee on Scientific Work for their arrangement of the interesting and instructive program of papers and exhibits at this session.

Resolved, That the Oregon State Medical Society acknowledge the interest and efforts of our members who contributed to the program as essayists and exhibitors.

Resolved, That the Oregon State Medical Society express its deep appreciation to the Mid-Columbia Medical Society, to its Committee on Arrangements and Woman's Entertainment Committee for the excellent arrangements made for the convenience and pleasure of our Society and its Woman's Auxiliary; to Judge Fred W. Wilson, and the Wasco County Court for the use of the county courthouse as a place of meeting; to The Dalles Chronicle for cooperation and courtesies in reporting the meeting, to the officers and members of the Elks Lodge for entertainment; to the management of employees of The Dalles Hotel for suitable accommodations and assistance; to the ladies of St. Paul's Episcopal Church for their delightful hospitality; to Pease and Company for their helpfulness in numerous details of equipping the meeting-hall; and to the many citizens who contributed to making the meeting successful.

Whereas, the report of the Committee on Publication requested instruction regarding appointments to fill vacancies in the office of associate editor of NORTHWEST MEDICINE; therefore, be it

Resolved, That the House of Delegates of the Oregon State Medical Society hereby authorize and instruct the members of the Committee on Publication to fill such vacancy as at present exists and such as may from time to time occur; and be it further

Resolved, That the House of Delegates express its appreciation to the Trustees and the editor, Clarence A. Smith, for their efforts in giving us such a superior journal.

On motion of Dr. Martzloff, seconded by Dr. E. D. Lamb, it was unanimously voted that this report be accepted and the resolutions contained therein be adopted, except the final resolution relating to the appointment of the associate editors of NORTHWEST MEDICINE.

Dr. Martzloff stated that the Council, as the representative body of the Society, should exercise control over the appointment of the associate editors of NORTHWEST MEDICINE.

On motion of Dr. Martzloff, seconded by Dr. Johnson, it was unanimously voted that the following resolution concerning appointments to the office of associate editor of NORTHWEST MEDICINE be adopted:

Whereas, the report of the Committee on Publication requested instruction regarding appointments to fill vacancies in the office of associate editor of NORTHWEST MEDICINE, therefore be it

Resolved, That the House of Delegates of the Oregon State Medical Society hereby authorize and instruct the members of the Committee on Publication to fill, from a list of members recommended by the Council, such vacancy as at present exists and such as may from time to time occur.

Dr. Martzloff pointed out that the Committee on Resolutions had not reported concerning the request of the Medical Library Association for assistance in obtaining adequate appropriations for the Army Medical Library and its Index-catalogue.

On motion of Dr. Martzloff, seconded by E. D. Lamb, it was unanimously voted that the following resolution be adopted:

Resolved, That the Oregon State Medical Society urgently request the Oregon delegation in Congress to support the annual appropriation to the Library of the Surgeon-General's Office of an adequate sum for current medical books and periodicals and for the purchase of back publications lost during those recent years when the amount granted was grossly inadequate, thus depreciating the completeness and usefulness of the Library's collection; and an additional sum annually, for as many years as may be required, in order to make for the greatest possible completeness of the collection and its Catalogue; as well as such an annual amount as is necessary to defray the cost of printing regularly each year not less than one volume of the Index-catalogue.

Report of Committee on Nominations

E. D. Lamb presented the following recommendations of the committee:

President-Elect	C. T. Sweeney, Medford
1st Vice-President	Charles E. Sears, Portland
2nd Vice-President	J. C. Vandevert, Bend
3rd Vice-President	W. W. Baum, Salem
Secretary	Morris L. Bridgeman, Portland
Treasurer	W. F. Hollenbeck, Portland

Councilors for three-year term ending in 1939:

Second District	O. C. Hagmeier, Astoria
Fourth District	J. C. Hayes, Medford
Sixth District	Thompson Coberth, The Dalles
Councilor-at-large	L. S. Kent, Eugene

Councilor to fill unexpired term of Charles E. Sears ending in 1937:

First District	Guy L. Boyden, Portland

On motion of E. D. Lamb, seconded by Dr. Hunt, it was unanimously voted that this report be accepted for submission to the Society.

E. D. Lamb reported that the Committee on Nominations had voted to nominate Goodrich C. Schauffler of Portland for member of the Committee on Publication for the three-year term ending in 1939, who was duly elected.

President Massey expressed his thanks to the committee for their work during the past year and commended the House of Delegates and the Council for their consideration of the subjects upon which they had acted.

Dr. Johnson asked what action was to be taken concerning unethical contract practice. There was discussion of this subject by numerous members of the House, during which it was pointed out that the House had already taken action by ratifying and adopting the Statement of Principles and Procedure for the Control of Contract Practice previously adopted by the Council.

On motion of Dr. Jones, seconded by Dr. Hunt, it was unanimously voted that the Council be commended for its past actions concerning unethical contract practice and that the Council be urged to continue in the course it has outlined for dealing with this subject.

At 9:00 a.m., the House adjourned sine die.

GENERAL BUSINESS SESSION OF THE SOCIETY

Saturday, October 10

The business session of the Society was called to order by President G. A. Massey at 9:30 a.m., in the Circuit Court Room in the Wasco County Courthouse.

Report of the House of Delegotes

The executive secretary presented the following report of the actions of the House of Delegates.

GENERAL ACTIONS

1. Commended the officers and committees for the excellence of their activities and the informative quality of their reports.

2. Recommended opposition to the so-called Truthful Advertising Constitutional Amendment on the November ballot.

3. Recommended active support of physician-candidates for the state legislature.

4. Authorized the Committee on State Industrial Affairs to deal with the State Industrial Accident Commission for the purpose of obtaining the elimination of or a reduction in the 25 per cent discount from the Society's Minimum Industrial Fee Schedule which the Commission is now applying to the compensation of physicians.

5. Authorized the Committee on State Industrial Affairs to cooperate with the State Industrial Accident Commission in a survey of occupational diseases in connection with contemplated amendments to the Workmen's Compensation Law designed to make such diseases compensable.

6. Approved a review of the Constitution and By-Laws and the drafting of needed amendments and voted to request each component society to review and amend its constitution and by-laws in harmony with that of the state society, particularly with regard to disciplinary procedure.

7. Ratified and adopted as the policy of the Society, the action of the Council on September 2, 1936, in adopting a certain statement of Principles and Procedure for the Control of Contract Practice, submitted with the report of the Secretary. (On motion of R. B. Adams, seconded by Dr. Sears, and unanimously carried, this statement was read verbatim.)

8. Referred to the Council with power to act all invitations and suggestions received concerning the place of the 1937 annual session.

9. Recommended that the capacity of the Eastern Oregon Tuberculosis Hospital at The Dalles be increased to 250 beds and that this be done before any other building or expansion is carried out at any other place in the state; and further that certain other measures for the more effective care of the tuberculous be carried out.

10. Recommended that each delegate be requested to present at the November meeting of his component society a summary of the various reports of officers and committees and the actions of the House of Delegates.

11. Recommended that each component society devote certain of its meetings during the coming year to a discussion of problems of medical economics and the policies of organized medicine with relation thereto.

12. Recommended that in order to avoid duplicate rep-

resentation in the House of Delegates the several district societies, in electing delegates to the state society, bear in mind the representation already accorded their membership through delegates elected by the county medical societies within the boundaries of the district society.

13. Recommended that in the light of the increasingly invaluable services of the executive secretary and the reduced salary under which he has been working, his former salary be restored, inasmuch as the Treasurer has presented a favorable financial report which shows an abundant reserve.

14. Voted to hold a midyear session, in addition to the session held in connection with the annual meeting of the Society.

Resolutions Adopted

Eleven resolutions were read which had been adopted by the House of Delegates (page 482 of this issue).

Elections By the House of Delegotes

Member of Committee on Publication for three-year term ending in 1939, Goodrich C. Schauffler, Portland.

Amendments to the By-Lows

An amendment to the By-Laws which had been adopted by the House of Delegates was read (page 481 of this issue).

Morris L. Bridgeman, *Secretary.*

On motion duly made and seconded it was voted that this report be accepted and the actions of the House of Delegates contained therein be approved.

Election of Officers

The recommendations of the House of Delegates for the various offices of the Society were read as appears on page 483 of this issue.

President Massey called for further nominations for each of the above offices. None being made, on motion duly made and seconded, it was voted that the rules be suspended and that the Secretary be instructed to cast an unanimous ballot for each nominee as presented in the report. Then each was declared elected.

Report of Committee on Honorary Membership

The Committee on Honorary Membership has held no called meeting but has been in communication by correspondence which, in view of the following report, would seem adequate.

It is the general opinion of the Committee that before a member is eligible to an Honorary Membership in the Oregon State Medical Society he should have distinguished himself in professional and civic life and must have rendered special service to and for the Society. Unselfish devotion to his profession and the medical welfare of the public should be the essential qualifications for such a membership.

The name of A. M. Webster, who has so well fulfilled these qualifications, was suggested and he was approached on the matter. However, he stated he preferred to maintain his status as a Life Member.

Therefore, the Committee has no recommendation to offer.

D. C. Burkes, *Chairman.*

On motion duly made and seconded, it was voted that this report be accepted.

Report of Committee on Necrology

In the absence of A. C. Kinney, the following report was read by C. T. Sweeney.

Whereas, our ranks have again been depleted by death of the following members of the medical profession of this state:

*Cortez H. Wheeler
Walter V. Spencer
Albert C. Hanson
Malcolm Irvine
*Alfred W. Christopherson
Ernest K. McKown
Elmer E. Goucher
Harry C. Randle
*Murray M. Levy
James Frank Leslie
Joseph K. Myers
*Ernst A. Sommer
Irwin I. Davis
Frank M. Bell
Louis G. Altman
Horace P. Belknap
Eugene L. Ketchum
*Samuel C. Slocum
Charles H. Brewer

*Member of Oregon State Medical Society.

Whereas, these men had conspicuously devoted their energies to the public welfare and to the building up of this society since its origin; therefore be it

Resolved, That the Oregon State Medical Society at its 62nd annual meeting assembled, express to the families of the deceased members their heart-felt sympathies, and may the knowledge of their many years of service to humanity lessen to some extent the feeling of loss of dear ones.

On motion duly made and seconded, it was voted that the report of the Committee on Necrology be adopted. The members then rose and paid silent tribute to the memory of the physicians who died during the past year.

Statement of Retiring President

Retiring President G. A. Massey made a brief talk, expressing his appreciation of the cooperation given him by the Council and its Executive Committee, as well as the members of the various committees and the membership as a whole. Dr. Massey said that ordinarily he would be called upon to introduce the incoming president, but Dr. Watts had been inducted into office at the banquet on Friday evening and owing to illness he could not attend the present meeting. Dr. Massey bespoke the cooperation of the membership for Dr. Watts and called attention to the outstanding work he had done in behalf of the Society.

President Massey then called upon C. T. Sweeney, President-elect. Dr. Sweeney made a brief statement in which he said that service as President was not primarily a matter of honor but a question of service in a very critical period. He stated that Dr. Watts and himself needed the support of every member on a three-fold basis of ethics, loyalty to the medical profession, and cooperation.

The business session of the Society was declared adjourned at 10:30 a.m.

WOMAN'S AUXILIARY

The tenth annual meeting of Woman's Auxiliary to Oregon State Medical Society, held at The Dalles Oct. 8-10, was a decided success. One of the things we noticed in the registration this year was the number of members at large who are coming into the organization. This is probably due to the fact that many localities have not enough possible members to organize, and yet they wish to keep in touch with what is going on in the auxiliaries.

The first morning was taken up with registration and greetings from Wasco county by Mrs. Thompson Coberth of The Dalles, responded to by Mrs. John G. Abele of Portland, announcements for the three days to follow and the routine business of the beginning of a convention.

At the luncheon in honor of the advisory council, Dr. Massey, retiring president of Oregon State Medical Society, spoke briefly, telling of his appreciation of the work of the Woman's Auxiliary. Dr. Sears, chairman of the advisory committee, gave a very interesting and enlightening talk on state medicine and its menace to the medical profession. Dr. Thomas Watts, president-elect of the State Society, was unable to be present on account of illness and Dr. Sweeney, one of our advisors, spoke a few minutes on what might be expected of the Auxiliary in the next few years.

The afternoon session was opened by the president, Mrs. Wm. F. Patrick of Portland, giving her excellent report of the year's work, in which she outlined what had been done in health education, Hygeia and the other departments. The afternoon's work continued with the reports of the standing committees. After the adjournment of the business session, some of the guests found time to drive up to Celilo to view the rugged scenery of the gorge and to watch the Indians spearing fish at the falls.

The dinner for the women was in charge of Mrs. DeWalt Payne of The Dalles and was in the form of a Bowery dinner with the tables apparently set on the edge of the sidewalk and the coffee served in tin cups and the flowers in tomato cans. The tables were lighted by candles stuck into bottles which must have been holding candles for years. There was an amusing program after dinner and when that was over the talent of the ladies of the Auxiliary was brought out from its rose leaves and lavender and some of it was truly marvelous.

Friday opened with the Founders' breakfast, where we found a gorgeous cake provided by the women of The Dalles to celebrate our tenth birthday. Here the Founders present gave their ideas and ideals when they were first forming the Auxiliary, which when compared with those of the women who are carrying on the work today, were found to be almost the same; service to the medical profession and education to ourselves and to the public. The business meeting for the morning opened at 9:30 with reports of the presidents of the counties and ended with reports of the special committees on cancer control, the McLoughlin House, registration and credentials, and the nominating committee.

Immediately before adjournment the following officers were elected: president-elect, Mrs. George H. Bendshadler of Portland; first vice-president, Mrs. Carl Emmons of Salem; second vice-president, Mrs. Wm. J. Weese of Ontario; third vice-president, Mrs. C. J. Rademacher of Bend; fourth vice-president, Mrs. Russell C. Keiser of North Bend; treasurer, Mrs. Frederick Stricker of Portland; recording secretary, Mrs. James M. Odell, The Dalles; auditor, Mrs. C. W. McCain, Hood River.

In the afternoon the delegates and visitors were entertained at a charming tea at the home of Mrs. Thompson Coberth which overlooks the lava plain between the hills and the mighty Columbia. In the evening the annual banquet with the Medical Society was an enjoyable affair.

On Saturday morning the business of the convention was concluded and the new officers were installed. At a post-convention board meeting the committees for the new year were announced and a few items of business were transacted before adjourning for the golf tournament which had been arranged by Mrs. Merle Taylor of Portland and Mrs. James Odell of The Dalles.

Margaret P. Lamb,
President, Woman's Auxiliary

WASHINGTON

KING COUNTY MEDICAL SOCIETY

Pres., R. D. Forbes; Secty., M. S. Jared

King County Medical Society held a regular meeting in the auditorium of Medical-Dental Building, Seattle, November 2, President Forbes presiding. Minutes of the meeting of October 19 were read and approved.

Clifford Senecal was elected to membership. Applications of A. E. Eyres and George D. Capaccio were presented. President Forbes made announcement concerning the dinner dance and flower show of Woman's Auxiliary at Washington Athletic Club to be held November 11.

Frank J. Leibly read a paper on "Amebic Dysentery." Diagnosis of this condition was discussed and many facts presented pertaining to its determination. A description was given of the relation of the entameba histolytica to the intestine and the morbid effects produced by it. The method of invasion was described and the character of resulting ulcerations. The effect on the portal circulation and the liver were discussed and consequent results described. The paper was discussed by Alfred L. Balle, George A. Dowling, Souren Tashian and Clark C. Goss.

P. A. Rohrer read a paper on "Transurethral Resection." This operation was described and the cases mentioned to which it is applicable. Emphasis was laid on the necessity of a correct diagnosis. Then follows the necessity of preliminary treatment. This was described, as well as the postoperative treatment. The author mentioned the results in his own practice, describing his satisfaction in this procedure, and the conclusions on which were based his opinion. The paper was discussed by O. A. Nelson and G. R. Ridlon.

KITSAP COUNTY MEDICAL SOCIETY

Pres., J. P. Schutt; Secty., J. E. Haddon

Members of the Kitsap County Medical Society and the Auxiliary were entertained at the home of Dr. and Mrs. T. C. Baldwin, October 13. V. W. Spickard of Seattle was the guest speaker. Buffet luncheon was served at the close of the meeting.

NORTH PACIFIC SURGICAL ASSOCIATION

North Pacific Surgical Association celebrated its silver anniversary at the meeting at Tacoma November 20-21. Meetings were held at the Winthrop Hotel with Horace J. Whitaker, president, in charge. His opening address was followed by a paper by Leo Eloesser of Stanford University Medical school. On the evening of the first day Dr. Eloesser spoke at the Medical Arts auditorium to members and guests. Scientific discussions on the second day were followed by the annual banquet at the hotel.

PIERCE COUNTY MEDICAL SOCIETY

Pres., A. W. Howe; Secty., W. B. Penney

The regular meeting of Pierce County Medical Society was held in the Medical Arts Building, Tacoma, November 10, with A. W. Howe in the chair. Minutes of the previous meeting were read and approved.

A. N. Seal, of the United States Tacoma Hospital, was elected to membership.

The first paper of the evening was given by W. A. Niethammer on "Iodine in the Treatment and Prevention of Goiter." Dr. Niethammer gave a resume of the literature and presented in a plain, practical manner the present accepted use of iodine, both in prevention and treatment. The paper was discussed by S. F. Herrmann, A. L. Schultz and T. B. Murphy.

The President announced that a committee consisting of W. D. Read and W. B. Penney had been appointed to review the by-laws and bring in recommendations for changes to bring them into harmony with the new state by-laws, these recommendations to be presented at the next meeting.

W. D. Read read the minutes of the meeting of the

Board of Governors of the State Defense Fund, held November 30, and explained the changes that had been made in the membership and expense of the state defense fund. He also outlined the duties of the county Malpractice Committee. It was voted that Pierce County Medical Society accept and approve the regulations promulgated by the State Defense Governors and that they be incorporated in the new by-laws.

SKAGIT COUNTY MEDICAL SOCIETY

Pres., F. W. Baugh; Secty., Harold Hopke

The monthly meeting of the Skagit County Medical Society was held October 26 at Hotel President, Mt. Vernon. Hilda Behrns read the paper of the evening which discussed "Communicable Diseases." Dinner preceded this meeting as well as the meeting of the Auxiliary which was held at the same time. Following the dinner members of the Auxiliary motored to Burlington to the home of Mrs. Baugh.

SNOHOMISH COUNTY MEDICAL SOCIETY

Pres., O. R. Allen; Secty., E. J. Van Buskirk

A meeting of Snohomish County Medical Society was held at the Medical-Dental building library, Everett, November 5.

The following officers were elected for the ensuing year: A. B. Murphy, president; Herbert W. Johnson, vice-president; William Wagner, secretary-treasurer, and W. V. Fulton member of the board of censors. These officers will be installed at the annual meeting which will be held at the Everett Golf and Country Club in December.

SNOHOMISH COUNTY SURGICAL SOCIETY

The newly organized Snohomish County Surgical Society held its first regular meeting October 26 at Monte Cristo Hotel, Everett. R. A. Quigley reported his recent clinical trip in the East and the remainder of the meeting was taken up with discussion of surgery of the sympathetic nervous system. S. L. Caldbick and Albert Murphy were appointed to the Council while J. Spencer Purdy and H. R. Secoy were named to the Committee on Arrangements.

WALLA WALLA VALLEY MEDICAL SOCIETY

Pres., A. B. Lange; Secty., S. R. Page

Walla Walla Valley Medical Society held its regular meeting on November 12 at Grand Hotel, Walla Walla, following a 6:30 dinner. Forty-two physicians were present.

The entire evening was devoted to the scientific program which was conducted by Otis F. Akin, Associate Professor of Orthopedic Surgery of University of Oregon Medical School. He gave two papers. The first was entitled, "Foot Pains, Their Causes and Treatment from the General Practitioner's Viewpoint," which was illustrated by lantern slides. The second was, "Fracture of the Neck of the Femur." Dr. Akin gave his personal experience with pinning and nailing, or internal fixation, including grafting, and made a plea for the Whitman method of complete reduction by manipulation and proper immobilization in plaster. He presented the latter feature of setting and locking in plaster by means of a movie film. General discussions followed these very interesting papers.

YAKIMA COUNTY MEDICAL SOCIETY

Pres., W. L. Ross, Jr.; Secty., H. L. Hull

The regular monthly meeting of Yakima County Medical society was held at Commercial Hotel, Yakima, November 9 at 6:30 p.m., preceded by the usual dinner. Twenty-two members and three visiting physicians were present.

The scientific program was as follows:

J. B. Plastino of Spokane presented a paper on "Endocrines in Hypertension, Carbohydrate Metabolism and Obesity."

Donald Palmer of Spokane spoke on the subject of "Achylia Gastrica, Pernicious Anemia and Gastric Polypi."

J. M. Nelson of Spokane discussed "Water Balance and Dehydration in Surgical Patients."

STATE DEPARTMENTS

OREGON

OREGON NEWS NOTES

Portland, Ore., Nov. 23, 1936.

Probably the most important subject requiring the attention of the medical profession of Oregon during the month of December is the renewal of state licenses. The fee, as usual, is five dollars, two dollars of which is for the support of the medical library located at the University of Oregon Medical School. The library, with its exchange privileges with the Surgeon General's and other libraries, gives a service that is second to none. The library is of value only when it is used and becomes more valuable with increased usage. Are you getting your share of the value of the library? Miss Hallam, our efficient librarian, is always glad to send you such literature as you may desire.

Beginning January 1, the State Social Security Law becomes operative. It provides for a one per cent tax on the payroll of the employer and a similar assessment from the wages of the employee. This affects employers of eight or more employees, including private hospitals operated for profit. Physicians, generally, and hospitals operated not for profit are exempt from the operation of this law.

On November 12, the Council of the Society met with the members of the Clackamas County Medical Society to discuss the problems of the latter in relation to contract practice. Many matters were discussed, all leading to a better understanding of the problems involved. Several other county societies are arranging similar meetings with the Council.

The northwest regional meeting of American College of Surgeons will be held in Seattle early in the spring and deserves support of all of our members. The American College of Surgeons has accomplished much for humanity in many ways, most outstanding of which are its standardization of hospital programs and its stand against fee splitting.

The Portland Academy of Medicine was host on November 20, 23 and 24, to Dr. Walter Schiller, noted gynecologist, of University of Vienna. The meetings of the Academy bring to Portland outstanding men from a distance and are of great value. All members of the medical profession are invited to attend.

The voters of Oregon are to be congratulated for having defeated at the last general election the vicious so-called "Truth in Advertising Amendment." This bill was another one of those initiative bills which are originated by individuals to further their own personal ends. The electorate of the state have repeatedly disavowed such measures and it is hoped that they will not be proposed again. We congratulate our friends, the dentists, on the splendid result.

The next legislature will contain the following physicians: James A. Best of Pendleton, Senate; J. E. Hosch of Bend, C. T. Hockett of Enterprise, A. K. Higgs of Portland, and A. O. Waller of Eugene in the House. Mr. Fred Dawson of Albany, druggist, was also elected to the House. This is a good representation of men of high ethical ideals and the effect of their presence in the legislative halls will be of benefit to the people as a whole.

The profession of Oregon joined with our confreres in Washington and Idaho in honoring the editor of our esteemed journal, Clarence A. Smith, by a banquet on November 23 in Seattle. Dr. Fred A. Kiehle was the principal speaker. The influence of Dr. Smith, throughout the years during which he has been editor of our journal, has been very great. His quiet, unassuming attention to the work at hand has left him unknown personally to many of our members who have benefited by his judgment in handling our journal. Our membership congratulates Dr. Smith on this joyous occasion and hopes that he may serve us many years to come in the comradeship of his good wife.

Ralph Fenton, trustee of the A. M. A. and Morris L. Bridgeman, Secretary of Oregon State Medical Society, returned recently from Chicago, where they attended meetings of their respective groups. They renew assurances that the A. M. A. is watching with interest the working out of the various factors provided in the Social Security Act, and will present at the proper time such suggestions as conditions warrant.

One of the important subjects considered at these meetings was that of the control of syphilis. Thomas Parran, Surgeon-General, spoke before both the trustees' and secretaries' associations. He stressed the need for the control of this disease, assuring those present that it is the desire of the Public Health Service and of the Administration that this matter be handled through the local medical societies and the local boards of health. It is hoped that the menace of syphilis may be removed.

The meetings of these two groups as well as those of the State Journal Editors Association, all well attended, were held in the new meeting hall in the reconstructed A. M. A. headquarters instead of in hotels as has been the custom in the past. Both Drs. Fenton and Bridgeman expressed themselves as delighted with the new arrangement. The meeting hall is large and nicely furnished, and the acoustics are good. The remodeled headquarters building gives greater efficiency to all departments.

The A. M. A. trustees authorized continuation of the publication of the Bulletin but in the future it will become a part of the Journal. It will thus be of greater value than in its present form.

The annual meetings of these groups have a beneficial effect on local memberships for they inspire the secretaries to renewed energies and, as they see the inner workings of the national organization and disseminate this knowledge, the members more and more appreciate their great organization and the enormous amount of work which it is doing for the benefit of the public health as well as of physicians.

Adalbert G. Bettman,
Editor.

BOOK REVIEWS

Urological Roentgenology. A Manual for Students and Practitioners. By Miley B. Wesson, M.D., Ex-President American Urological Association, and Howard E. Ruggles, M.D., Roentgenologist to University of California Hospital, etc. Illustrated with 227 Engravings. 269 pp. $5. Lea & Febiger, Philadelphia, 1936.

To those who are at all interested in urologic diagnosis, this small volume will become a valuable aid. It is a miniature textbook on urology, considered from the viewpoint of diagnosis. It is most complete in the coverage of lesions of the urologic tract. Naturally from the title of the book, the subject of diagnosis has been largely attacked through the use of roentgen rays. The authors have collected their material from many sources, allowing a fine choice to be made of illustrations.

In the hands of the best of roentgenologists it is often difficult to interpret the pictures which they have taken. There are many sources of error to the unwary or inexperienced. This volume points out ways in which to avoid incorrect interpretation of these films. The authors have gone into the technic of making pyelograms, pointing out the normal ones, the anomalies and then going in considerable detail into such conditions as hydronephrosis, infections, lithiasis, tumor, traumatism, neurologic lesions and the unusual conditions.

The illustrations themselves are very clear which is a rather difficult thing to achieve in reproducing roentgenograms. The compactness of this volume, its excellent illustrations and the modest price should warrant its popularity with all urologists and roentgenologists. In conclusion, this contribution to the literature of urologic diagnosis will prove a very decided aid in a more accurate interpretation of urologic lesions. Peacock.

A Textbook of Physiology, for Medical Students and Physicians. By William H. Howell, Ph.D., M.D., Sc.D., LL.D., Emeritus Professor of Physiology in The Johns Hopkins University, Baltimore. Thirteenth Edition, Thoroughly Revised. 1150 pages with 308 illustrations. Cloth, $7.00 net. W. B. Saunders Company, Philadelphia and London, 1936.

The author states that textbooks on physiology must be revised at frequent intervals in order to keep abreast of the times, since every year a large research literature appears in technical journals bearing on every phase of the subject. Attention is called to the fact that there is a distinctly accelerated development at present in the field of biochemistry. In many cases the chemical nature and structure of constituents of the body such as the hormones are now definitely known. The author considers it more desirable to reduce material by elimination rather than by too much condensation. Certain subjects must be treated in considerable detail. The author has endeavored to impress on the student that physiology is a growing subject, continually widening in knowledge and readjustment of theories. This volume is divided into nine sections, dealing respectively with muscle and nerve, central nervous system, special senses, blood and lymph, organs of circulation, respiration, digestion and secretion, nutrition and head production and regulation, reproduction. It is obviously impossible to comment effectively on the contents of such a comprehensive volume. One seeking information on physiology will be repaid by studying this volume.

Minor Surgery. By Frederick Christopher, S.B., M.D., F.A.C.S., Associate Professor of Surgery at the Northwestern University Medical School, Chicago, etc. With a foreword by Allen B. Kanavel, M.D., F.A.C.S., Professor of Surgery at the Northwestern University Medical School. Third Edition, reset. 1030 pages with 709 illustrations. Cloth, $10.00 net. W. B. Saunders Company, Philadelphia and London, 1936.

The author states that minor surgery is that which has a low mortality, commonly performed in the outpatient department or the office. Including every day surgical conditions, it represents the large majority of surgical cases. In this volume are set forth methods and procedures which have been found most useful. Their importance is manifest when one considers that most surgery is performed by the general practitioner, while major operations demand special skill and training. This edition includes many new headings which have been developed or elaborated since the previous edition four years ago. These cover a large number of subjects such as fractures, infections, injection treatment of hernia and many specialized subjects. The profusion of illustrations amplifies much subject matter. In this volume one can find information and suggestions covering practically all conditions included under minor surgery.

Principles of Biochemistry. By Albert P. Mathews, Andrew Carnegie Professor of Biochemistry, University of Cincinnati. 512 pp. $4.50. William Wood & Company, Baltimore, 1936.

The study of biochemistry has been much accentuated in recent years. It is one of the most difficult subjects for the average student, since insufficient time is generally assigned for the study of so many important facts. The author states: "In this book I have tried to correlate and synthesize the numerous facts, so that they will appear not as an inchoate assembly of facts, but as making part of a great science which reveals the finer structure and coordinated chemistry of the human body." It is naturally impossible to review intelligently the details of such a work. It is divided into parts which deal with chemistry and metabolism of the glucides, chemistry and metabolism of the lipides, chemistry and metabolism of the proteins, special chemistry of important tissues, catalytic agents of growth and development, income of energy. The principles of biochemistry are alone presented, particularly exercises being omitted since these are included in several good manuals. One desiring to study this subject will find this a useful volume.

Modern Treatment and Formulary. By Edward A. Mullen, P.D., M.D., F.A.C.S., Assistant Professor Pharmacology and Physiology, Philadelphia College of Pharmacy and Science, etc. 707 pp. $5.00. F. A. Davis Company, Philadelphia, 1936.

It is often convenient for a busy practitioner to have available a handy volume containing therapeutic and other suggestions in convenient form. The greater portion of this book deals with essential facts of treatment, accompanied by more than two hundred selected prescriptions. Diseases are arranged alphabetically and the descriptions of each contain essential needed information. An appendix deals with a variety of interesting procedures such as intravenous medication, fluid food formulae, diet lists, differential diagnosis, dosage tables. It is thus noted that many varied data are presented in this volume.

Globe Trotting With a Surgeon. By Alexander H. Peacock, M.D. With photographs by the author. 276 pp. Lowman and Hanford Company, Seattle, 1936.

Publication of one's observations in world wide travel has become a popular pastime in recent years. While some of these present a mere routine recital of daily experiences on sea and land, others feature interesting incidents which attract the attention of the reader. This volume belongs to the latter class. The author's style is enlivening and picturesque, attracting the reader's attention to incidents in his travels that lead him on from chapter to chapter in anticipation of new delight, revealed in scenes presented from city to city and country to country. Citation of personalities on ship board, descriptions of street scenes with unusual and bizarre settings, beautiful descriptions of buildings and landscapes attract the interest of the reader. A battle between a mongoose and cobra under the supervision of a street snake charmer in India offers a vivid sidelight on the scenes of that mysterious country. Descriptions of scenes in the Orient and European cities are amplified with historical and antiquarian quotations that add to the interest in the book. Acquaintance with the author makes the reading of the book seem more personal. One will be well entertained by perusing this volume.

This report was referred jointly to the Committees on Resolutions and New Business.

British Masters of Medicine. Edited by Sir D'Arcy Power, K.B.E., F.R.C.S., F.S.A., Consulting Surgeon and Archivist to St. Bartholomew's Hospital, etc. 242 pp. $3.00. William Wood and Company, Baltimore, 1936.

Anyone interested in medical biography will be greatly entertained by reading this volume. Sketches are presented of the lives of twenty-four medical masters, each accompanied by a photograph. These sketches are arranged chronologically, the first featuring William Harvey (1578-1657). This interesting description particularly considers the discovery of the circulation. Among these distinguished members of our profession are the well known names of Sydenham, Pott, Hunter, Jenner, Bright, Addison, Simpson, Lister, all being scheduled in the order of their birth. The last three sketches in the book are of William Osler (1849-1919). Humanities and Medicine; James Mackenzie (1853-1924), Cardiology; Ernest Henry Starling (1866-1927), Physiologist. Each of these short biographies presents delightful reading with pleasing summaries of the important contributions of each to medical knowledge.

New and Nonofficial Remedies, 1936. Containing Descriptions of the Articles Which Stand Accepted By the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1936. 542 pp. $1.50. American Medical Association, Chicago, 1936.

The descriptions of accepted articles in this volume are based on investigations by the Council and on information supplied by the manufacturer. A list is given of the remedies included in the 1935 edition which are omitted in the present edition on account of lack of evidence for continued eligibility. Another list has been omitted on account of being off the market. Articles under similar composition or actions are grouped together. A long list is given of preparations which have been revised as to their actions and uses. No book is available which contains so much information concerning trustworthy and dependable preparations for use by the average practitioner. A supplement contains a list of remedies which have been accepted dur-

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ing 1936. Printed on yellow pages there is an index of preparations and unofficial articles not included in New and Nonofficial Remedies. This is accompanied by a booklet containing reprints of reports of the Council on Pharmacy and Chemistry for 1935.

A Textbook of Obstetrics. By Edward A. Schumann, A.B., M.D., F.A.C.S., Professor of Obstetrics, School of Medicine, University of Pennsylvania, etc. 780 pages with 581 illustrations on 497 figures. Cloth, $6.50 net. W. B. Saunders Company, Philadelphia and London, 1936.

This volume covers in fair detail the subject of obstetrics. The author has not presented any new material, nor is there in text or illustration sufficient detail to satisfy anyone doing special work in obstetrics. The illustrations are excellent, the text well and plainly written, making this a fine book for the student but scarcely one for the specialist.

The question of anesthetics, agents and methods of use is rather briefly treated without the author committing himself to any one recommendation. The action and uses of glands and glandular products are discussed briefly from a theoretical viewpoint. Not an outstanding book, but comprehensive in scope and a useful addition to one's library.

Beeler.

Obstetric Management and Nursing. By Henry L. Woodward, M.D., Professor of Obstetrics, University of Cincinnati School of Medicine, etc. and Bernice Gardner, R.N., Supervisor and Instructor of Obstetrics, Christ Hospital, Cincinnati. With a Section on Home Deliveries by William P. Gillespie, M.D., Assistant Professor of Obstetrics, University of Cincinnati School of Medicine, etc. Also with a Section on Diseases of the Newly Born. By Harold F. Downing, M.D., Attending Pediatrician, Christ Hospital and Children's Hospital, Cincinnati. 744 pp. $3.50. F. A. Davis Company, Philadelphia, 1936.

The purposes of this book are indicated in the above titles. The nurse is not educated nor instructed as an obstetrician. It is believed, however, that she should be familiar with the principles of delivery with subsequent care of mother and children. Chapters deal with normal and abnormal pregnancy and delivery, with many useful suggestions which the observing nurse may employ to advantage. Numerous illustrations amplify the text. At the end of each chapter is a summary followed by questions which help to clarify important features.

Lectures on Diseases of Children. By Robert Hutchison, M.D., LL.D., F.R.C.P., Consulting Physician to the London Hospital and Hospital for Sick Children, Great Ormond Street, etc. 452 pp. $6.75. William Wood & Company, Baltimore, 1936.

The purpose of this book is not to offer an extensive treatise on the diseases of childhood. The author aims to describe common diseases of children not usually dealt with in systematic lectures on medicine. The discussions are purely from a clinical standpoint with little reference to pathology. Treatment, however, is dealt with in some detail. There must be demand for a book that has reached its seventh edition. In this volume are discussed many conditions of childhood encountered in the general practitioner's average experiences which will afford profitable and suggestive reading.

Medical Clinics of North America. Issued serially, one number every other month. Volume 20, Number 2. St. Louis Number—September, 1936. Octavo of 350 pages with 24 illustrations. Per Clinic year July 1936 to May 1937. Paper, $12.00; Cloth, $16.00 net. W. B. Saunders Company, Philadelphia and London, 1936.

In this volume are presented twenty-four clinical reports, contributed by twenty-eight St. Louis internists. An endocrine symposium includes clinical reports of border line endocrine disturbances, diagnosis and treatment of endocrine infantilism, endocrine obesity, treatment of pituitary insufficiency and pituitary hyperfunction, diagnosis and treatment of hyperinsulinism. Many other conditions are discussed in instructive clinical reports, some of which are encephalitis, stoneless gallbladder, pulmonary bleeding, abnormal cardiac rhythms, functional disorders of children and other equally important subjects.

Medicine and Mankind. Lectures to the Laity delivered at the New York Academy of Medicine. Edited by Iago Galdston, M.D. 217 pp. $2.00. D. Appleton-Century Company, Inc., New York and London, 1936.

Annually the New York Academy of Medicine sponsors a series of lectures concerning relationship between the medical profession and the public in an attempt to reveal to the reader the influence which directs the working of the medical mind. The seven lectures presented in this volume, delivered by well known members of the profession, deal with facts concerning the human body, the mind, vitamins, death and other subjects. The physician as well as interested layman will find material of interest in this book.

Principles of Chemistry. An Introductory Textbook of Inorganic, Organic and Physiological Chemistry for Nurses and Students of Home Economics and Applied Chemistry. With Laboratory Experiments. By Joseph H. Roe, Ph.H., Professor of Biochemistry, School of Medicine, George Washington University, etc. 475 pp. $2.75. The C. V. Mosby Company, St. Louis, 1936.

The purpose of this book is stated to meet the requirements for chemistry for nurses recommended by the National League for Nursing Education. In simple language are presented to the reader the essential principles of chemistry as indicated in the title. There is an introductory interpretation of facts of organic, inorganic and physiologic chemistry. While Part I considers principles of chemistry, Part II is devoted to laboratory experiments.

Present Status of Cystometry. D. K. Rose, St. Louis (*Journal A. M. A.*, Nov. 7, 1936), believes that the clinical value of cystometry lies chiefly in its identifying the bladder to clinicians as an organ of practical physiologic importance in differentiating all types of neurogenic from physically obstructed bladders, so that treatment may have a better foundation, and in offering bladder function tracings to explain symptoms and determine the results of treatment in dysuric bladders. Clinically, it quite alters the usually accepted view of bladder importance in prostate and bladder surgery, particularly in relation to infection. It differentiates types of dysuria after surgery, childbirth, trauma and disease or injury of the brain or spinal cord. For experimental work undoubtedly a continuous graph is necessary, but for clinical or bedside work methods of interrupted readings, that is, introducing 50 cc. and then taking a reading, are satisfactory. A second tracing at each examination is absolutely necessary, not to verify the first but to note on the second curve the influence of the first filling. In general the normal or irritable bladder is stimulated to decreased capacity and increased pressure, while the low sensation type of neurogenic bladder shows diminished sensation with increased capacity after the distention of the first filling.

NORTHWEST MEDI[illegible]NE

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The Tumor Institute of the Swedish Hospital

THE RADIUM EMANATION PLANT, shown in this illustration, was installed in the Swedish Hospital three years ago. A full-time physicist is employed by the hospital to operate the plant and make measurements of radium dosage. Ample amounts of Radium are available. Radon implants are made up for use in the hospital.

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—Kugelmass, Clinical Nutrition in Infancy and Childhood (p. 53)

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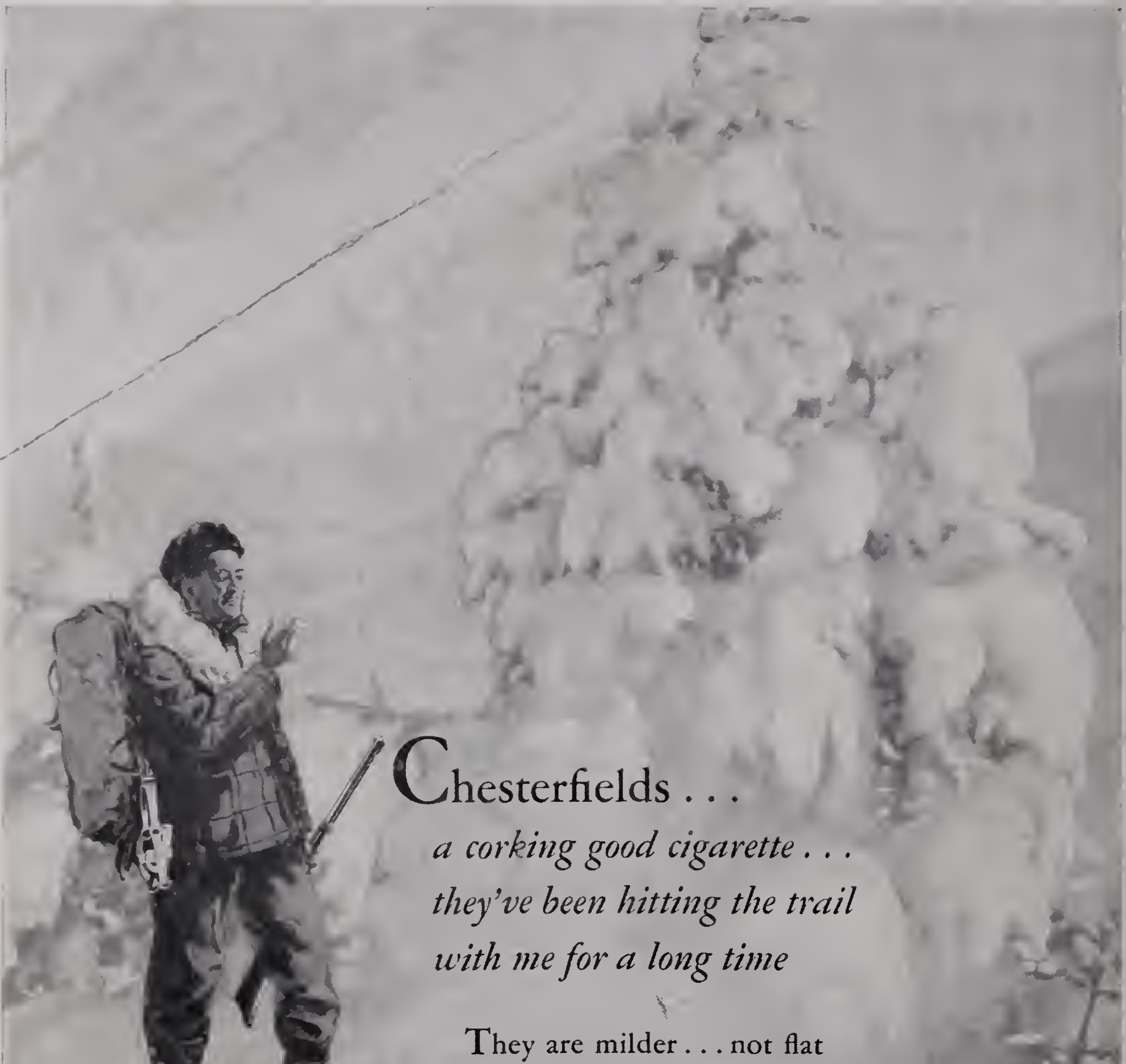

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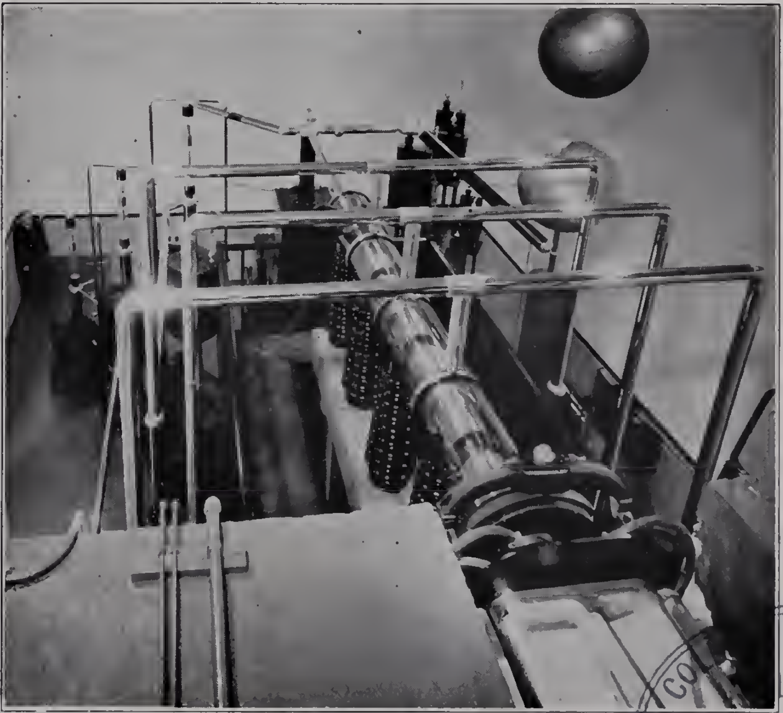

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